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Transport Situation Urgency Acknowledged

CONFIRMATION has now been forthcoming that the Government will give transport reorganisation precedence over the denationalisation of steel. This order of priority has been urged by us on several occasions, when we have pointed out the relatively satisfactory position of the steel industry compared with the unsatisfactory financial position of transport, and particularly the situation created by the intention to restore road haulage to private enterprise announced in the King's Speech. The first intimation of the order in which the problems are to be dealt with was given in a speech by Lord Woolton on May 2. The next day Mr. Churchill in a party political broadcast declared that "transport is more urgent than steel," and that he believed the most fertile hope of genuine social and economic improvement lay in reform of the transport system. Some hearers may have received a wrong impression from one of the Prime Minister's reasons for putting steel denationalisation in the second place, which was that the industry was being managed by the same skilful hands which had made it the foremost of our export industries. The same might justly be said of the management of transport which has suffered not from lack of expert guidance in its own affairs but from hesitancy in the solution of problems requiring Government action. Transport was one of the first industries to be nationalised and the storm of political controversy amid which it entered its new status has by no means blown itself out. At the time of going to press the Government White Paper on transport has not been issued. Whatever the form of organisation proposed, it cannot be fully effective unless it renders the industry free from political interference and provides it with a basis from which it can develop without interruption by further changes of structure. This implies a final form sufficiently acceptable to all parties for the temptation to readjust it not to present itself to every succeeding Government.

Resignation of Mr. J. S. Maclay

A STATEMENT from No. 10 Downing Street on Tuesday night announced the resignation, through ill health, of Mr. J. S. Maclay, Minister of Transport & Civil Aviation, who was taken ill on April 24. Mr. Maclay has borne the labours associated with the passenger fares controversy and the Government's plans for reorganising transport together with the added burden of his indisposition, and there will be general regret both at his decision and the circumstances that have made it necessary. In the closing weeks of his period of office a further controversy arose over the powers of the co-ordinating ministers appointed by the Government in relation to those of the departmental ministers. This position was clarified by Mr. Churchill in the House of Commons on Tuesday when he stated that the co-ordinators had no powers to give orders or direction to a departmental minister; and if a departmental minister was invited to adjust his policy to accord with the wider interests of the Government, he had access to the Cabinet. Transport was specially mentioned by Mr. Churchill as being a bigger subject than the province of a single department, and in this instance he had entrusted general supervision, including initiative in many ways, to Lord Leathers as co-ordinating Minister. This statement may relieve the new Minister of some, at least, of the controversial issues inevitable in the weeks ahead.

Summer Train Services

THIS year's summer services on British Railways, to operate from June 30 to September 14, have been based generally on those of 1951, and the overall passenger train-mileage has been restricted in order to save coal for the winter. Various factors prevent a general restoration of pre-war speeds, but accelerations are to be made in 60 long-distance services. The "Atlantic Coast Express" timing of 83 min. for the 83¼ miles from Waterloo to Salisbury will compare with fastest runs of 86 min. in 1939 and 91 min. in 1914. It is the fastest yet regularly booked between these points. The "Golden Arrow" service between London and Calais will be accelerated by 5 min. to a time of 3 hr. 15 min., or only 5 min. longer than pre-war. On other Regions accelerated expresses will include the "Cornish Riviera Express," the "Mid-day Scot," and the "Capitals Limited." Other services affected are enumerated elsewhere in this issue. About 200 more reserved seats a week will be available than last year. Stops by express trains at suburban stations near London and large provincial centres will be increased by 600 a week. Evidently provision of these outer suburban facilities in recent years has revealed the existence of a potential demand to which only minor attention was given on some lines in the pre-war years.

British Industries Fair

THE variety of industries that supply material to railways is so great that civil, electrical, and mechanical engineers and traffic officers of railways both in this country and overseas cannot fail to find much to interest them at the British Industries Fair, opened last Monday in London and Castle Bromwich, Birmingham. Exhibits in the heavy engineering and hardware section at Birmingham not only include many items of signalling, train lighting, and other electrical equipment, but also feature recent traction developments, as in the scale model of the first British-built gas-turbine locomotive now in service on British Railways, and an actual control desk for a diesel-

electric shunting locomotive for Australia. Freight handling equipment is an important feature. Many buyers from abroad are reported as showing keen interest. This is encouraging, in view of the urgent necessity for Britain to increase exports. The railway export industry of this country can be relied on to increase its output to the extent of its powers and still maintain the high standards of workmanship in its products.

Travel in South Africa

PERHAPS the first example of organised transport in South Africa was the northward trek of migrants from the Cape seeking new homes beyond the Orange and Vaal Rivers. When settled communities began to arise in the interior the mail coach for many years was their only link with the coast. The contrast between these means of communication in South Africa's pioneering era and those of the present day is well brought out in a folder produced by the South African Railways & Harbours for the tercentenary of the landing of Van Riebeeck which the Union has been celebrating. The growth of the great railway network in the sub-continent has taken place in well under a century, most of it in little over fifty years. The route mileage of some 14,000 has almost doubled since the formation of the South African Railways in 1910. The S.A.R. is the world's largest system on the 3 ft. 6 in. gauge, of which, with its powerful locomotives and spacious rolling stock, it represents the greatest possible development. The building up of the Administration's harbours, airways, and road services, if more recent, has been no less notable. Their combined facilities have made South Africa not only a thriving commercial country but also one whose remarkable scenic and cultural contrasts may be appreciated in ease and comfort by the railway traveller.

Public Relations on Swiss Railways

NUMEROUS media are used by the Swiss Federal Railways in promoting understanding among the public of their problems and achievements. The administration's report for 1951 records a general appreciation among press and public of the need to raise charges in the face of higher costs, and says that where dissatisfaction has been expressed it has been at the extent of the increases rather than against the principle. Much attention is paid to education of children in railway affairs, one of the measures taken being the free distribution to schools of the administration's *Bulletin des C.F.F.* In addition to this nearly 600 lessons on railway subjects have been arranged, attended by more than 16,200 pupils. Another educational enterprise is aimed at attracting recruits to railway service; for this purpose three short films were produced during the year, which have been described by the International Union of Railways as the best of their kind. Visits organised for the press have achieved useful publicity in the daily papers. There has also been collaboration with the broadcasting authorities in the preparation of programmes, and regular features on railway or general transport subjects have attained a considerable following among listeners.

Restoring the French Railways

THE energy and speed which the French National Railways applied to the task of making good the ravages of war were ably described by Monsieur M. Miot, Chef de Section Principal of the Northern Region of the S.N.C.F. at Aulnoye, in a paper entitled "The Reconstruction of the French National Railways," given before the London Section of the Permanent Way Institution on April 16. Monsieur Miot, who underwent a six-weeks' course of instruction on British Railways in 1949, came specially from France to attend the meeting, to which he spoke in English. The reconstruction of the S.N.C.F., which began in the autumn of 1944, was carried out in three stages: top priority works; temporary works; and permanent rebuilding. Because of shortages of materials and the urgency of the work, interesting expedients had to be adopted, and some have become standard practice on the S.N.C.F. Britain supplied a large tonnage of steel piling to offset the scarcity of timber for supporting temporary structures. Perhaps the most important development was the adoption on a large scale of reinforced concrete, little used before 1939 but now applied for all types of bridges, motive power depots and goods sheds. The need to repair tracks quickly called for novel components, such as pre-stressed concrete sleepers, which are now being laid in considerable numbers.

U.S.A. Railway Construction in 1951

DURING 1951 more new construction work was carried out by the railways of the United States than for many years previously. Much of it was improvement of existing yard and terminal facilities, but during the year 129 miles of new line, and five miles of widening, were brought into use also. On projects of a total estimated cost of $538,565,330, during 1951 there was an expenditure of $190,190,750, but completion will require the expenditure of a further $179,420,680 in 1952, apart from additional works that may be begun during the present year. A little over $20,000,000 was spent on new lines, most important of which is the Centennial cut-off scheme of the Chicago-Burlington & Quincy, which on completion this year is to improve this company's route between St. Louis and Kansas City, and will cost in all $16,330,000. There is also the $17,000,000 re-routing and regrading of the Southern Pacific Shasta main line caused by the construction of the Lookout Point Dam on the Willamette River in Oregon. On yard and terminal improvement, $47,448,800 was spent in 1951, on grade and alignment revisions $17,654,000, on bridges and tunnels $24,900,000 (mostly reconstruction), on level crossing abolition $8,078,800, and on locomotive shops and servicing facilities $24,811,400.

Drought and Flood Problems in South Africa

THE recurrent water shortage in semi-arid districts is one of the major problems of the South African Railways, for it means that tank wagons must be taken off profitable traffic and used to carry water for locomotives. The drought last autumn, which extended to sixty districts, was particularly severe in the Orange Free State, where complete water trains had to be operated for railway purposes. Livestock had to be moved by rail from the drought-stricken area to new pasturage. All this threw a heavy burden on the railways, which were already trying to cope with exceptionally heavy traffic. After the drought came thunderstorms and cloudbursts, causing floods and washaways on many sections. Some of the most serious washaways occurred in the Karroo, where 4·68 in. of rain fell in one week in February. Delays were caused to the northbound and southbound "Blue Train" and the northbound "Orange Express," but rapid work by the engineers reduced them to a minimum.

Failure of Track Circuits

AMONG the most common conditions which may cause track circuit failures are badly-packed rail-joints, which by their pumping action can result in broken bonds. Bonding may be by means of copper wire, copper-covered steel cable, or even galvanised steel, and it is usually at the plug connection to the rail that the bond fails, due to vibration causing the metal to crystallise and become brittle. A discussion of such failures in the *Railway Age* pointed out recently that they can be guarded against only by proper attention to rail-joint packing, both keeping the rail surfaces level at the joints and also the fishbolts properly tensioned. A possibility of current leakage and circuit failure that may not be so easily realised is a split sleeper. If a split in the timber should become filled with cinders and other impurities, these cinders can form a direct path for the current from one rail to the other, especially when flat-bottom track is in use. Permanent way with poor drainage, and patches of mud or cinders touching the rails, also can be productive of track circuit failures by short-circuiting, more particularly when the track is very wet as a result of heavy rainfall.

Efficiency in Fuel Consumption

THE discussion on the paper, "Railways and Coal," read by Mr. R. G. Jarvis to a joint meeting of the Institute of Fuel and the Institution of Locomotive Engineers on May 1 (see last week's issue) provided the opportunity for an exchange of expert views on locomotive design and operation. Replying to the speakers whose remarks are reported elsewhere, Mr. Jarvis dealt with several points not always fully appreciated outside the railway industry. He explained that special attention had not been given to designing fireboxes for oil-fired locomotives because this fuel was a more expensive proposition. Mechanical stokers had the disadvantage of breaking the coal in bringing it from the tender, and small particles went straight up the chimney. Rocking grates were being applied to all new locomotive designs. He acknowledged the special characteristics claimed for poppet valves, but said that the existing Walschaerts valve gear gave 70 to 75 per cent. of the Rankin Cycle efficiency and there did not seem to be much scope for improvement on that. Speakers from the Institute of Fuel paid tribute to railway training methods for firemen as exemplified in the former L.M.S.R. film, "Little and Often," shown at the meeting, and there was cordial agreement with Mr. Jarvis in his assertion that he had always found drivers and firemen complete enthusiasts for their job.

Evolution in Electric Locomotive Design

BRITISH practice in electric locomotive design follows a path of steady development based on operating experience rather than branching off into refinements and even complexities that may be attractive to the electrical engineer but of debatable value in day-to-day working. The new Co-Co locomotives for Spain described elsewhere, with electrical equipment by the English Electric Co. Ltd. and mechanical parts for 40 out of the order for 60 by the Vulcan Foundry Limited, recall the collaboration of their builders in the 3,000-h.p. design of similar wheel arrangement for the former San Paulo Railway. The new locomotives are of higher power and incorporate various mechanical and electrical changes. Axle-hung motors are used as before, but with resilient instead of plain gearwheels. Excitation for regenerative braking is taken from one of the motor-generator-blower sets instead of using one of the traction motors with its field separately excited from a regeneration exciter set. The cab layout is similar, but a separate handle on the master controller now selects weak-field in all three motor combinations instead of these two notches in parallel being on the controller handwheel. A warning light illuminated on any of the resistance notches should prove a useful feature of the cab equipment.

Transport No Charge on Taxpayers

CERTAIN misconceptions about the working of nationalised transport are widespread among the public, and are likely to be both reinforced and propagated further by some of the utterances of public men when transport becomes a subject of controversy. Some of these fallacies are the subject of an article by Mr. J. L. Henderson, Public Relations Officer, British Transport Commission, in the latest number of the *British Transport Review*. He deals first with the widely-held view that the taxpayer has to make good the Commission's deficits, a misconception to which we have referred on many occasions. The actual position was analysed in our August 3, 1951, issue, where we showed that transport users since the beginning of 1948 have received transport services at less than cost, leaving users of transport in the future to make good the difference. A stage must be reached eventually at which transport charges meet the cost of providing the services, for nowhere in the Transport Act is there provision for any form of subsidy, assistance or guarantee as far as revenue is concerned. In the meantime the deficit is being financed by the liquid assets taken over by the Commission on its formation. Many observers honestly doubt whether it will ever be possible to earn a surplus to extinguish the deficits, and Mr. Henderson describes the difficulty of convincing them that this will at length be achieved. The Commission claims no second sight for forecasting business trends, and the operations of the charge-fixing machinery are no easier to predict.

Resentment against the Commission's alleged monopoly in transport is shown to be ill-founded when so large a proportion of road transport, both freight and passenger is operated under private enterprise. Three-quarters of the craft operating on navigable canals are owned by independent owners. Mr. Henderson asks whether anyone resents buying an electric lamp because of the restrictive agreements and price maintenance revealed by the report of the Monopolies Commission. The negative answer he anticipates is due probably to two influences. First, lamp manufacturers' advertising suggests intense competition between makers even within the ring, and the public associates these competing claims to its interests and sympathy with a high standard of product. Secondly, even with purchase tax, the 60W. general lighting service lamp today is 4½d. cheaper than in 1939, and nothing overcomes moral scruples about monopolistic products more easily than a product whose price goes down while its efficiency goes up.

Railway passenger transport is still in the position of having to struggle back towards pre-war standards of speed and comfort, impeded by many obstacles arising through no fault of its own. The railways would like to improve many of their properties so that stations large and small could be shop windows for selling their services, but problems of materials, labour and costs impose a system of priorities. Meanwhile stations still waiting for a coat of paint or a new table in the waiting room are seized on by critics as a proof of indifference by the administration of the system.

Reviewing the whole situation, the author is not optimistic about a speedy removal of the misconceptions and misrepresentations discussed. His article is timely in providing the staff of the Commission with reasoned arguments with which to meet their critics, and it is likely that as much good can be done in the long run on the personal plane as by official statements and explanations. Some critics may ask why transport was nationalised at all if not to enable it to be kept going by subsidies in various forms. Mr. Henderson has not dealt with this particular question, which presumably must be answered on the lines that a body such as the British Transport Commission is the best medium to ensure that various forms of transport are integrated in the manner most conducive to national rather than sectional interests. Whatever replies are given on the various matters discussed in this article, criticisms of nationalised transport will still be made and will fulfil a necessary democratic function.

Prospects of the U.S.A. Railways

SINCE the end of the war in 1945 the financial situation of the U.S.A. railways has been far from satisfactory. They have handled the largest volumes of traffic in peacetime history without earning a fair return on their property investment. In 1951 operating revenues were nearly 10 per cent. higher than in 1950, but operating expenses were up 14 per cent. Net railway operating income, or earnings before charges, decreased by 9 per cent. and the return on investment fell from 4·2 to 3·7 per cent. The January return of revenues and expenses depicts a poor beginning for 1952. An increase of $18 million in revenue was wiped out by a rise of $41 million in expenses. Though taxes and rents were less, net railway operating income dropped from $79 to $66 million, a decrease of 16 per cent. The decline in net income, or earnings after charges, was no less than 26 per cent., from $57 to $42 million.

This reduction in the amount available for improvements, sinking fund charges, debt reduction and dividends is disconcerting at a time when large programmes of addi-

tions and betterments are in hand. The railways are left struggling to subsist on too narrow a margin of profit. The average amount charged for hauling a ton of freight one mile has run far behind the upward trends in both wholesale and retail prices of commodities. Between 1939 and 1951 the railway freight index, based on average revenue per ton-mile, increased from 100 to 137. Over the same period the wholesale price index soared from 100 to 234, while the consumers' price index, usually called the cost-of-living index, rose from 100 to 187.

In January the freight index advanced to 141, but a reliable index of industrial production was about 1 per cent. lower than it was a year ago and, taking wagon loadings as a trade barometer, the downward trend in output appears to have continued during the first quarter of the year. For the 13 weeks to March 29, the number of wagonloads decreased by 155,900, or 1·6 per cent. More wagons of coal, coke and ore were consigned, but forwardings of grain, timber and general merchandise were lighter. There was also a serious decrease of 8 per cent. in less-than-wagonload traffic. In 1929 one loaded wagon in every four carried smalls: in the first 12 weeks of this year the ratio shrank to one in ten. The U.S.A. railways are losing high-class traffic at a rapid pace to road, water and air carriers. It is significant that the Interstate Commerce Commission records over 1,300 common and contract road carriers as hauling 177 million tons of intercity traffic in 1951, compared with 165 million tons in 1950—an increase of 7 per cent.

In April the bleak outlook for 1952 brightened to some extent when the Interstate Commerce Commission authorised an increase of about 7 per cent. in freight rates. The railways have been kept waiting the Commission's decision for at least 6 months. The story of their efforts to obtain authority to raise rates is worth telling, because it proves that a costly time lag always intervenes between the date when higher costs are incurred and the date when increased rates operate.

In January, 1951, the railways applied for a general freight rate advance of 6 per cent., as an interim measure of relief. The Commission approved a rise of 4 per cent. in the East and 2 per cent. in the South and West, effective in April, 1951. On March 1, however, liberal advances in wages had been conceded and prices of materials had risen further. So on March 28 the railways submitted a fresh petition for a rate increase of 15 per cent., designed to replace the interim advance. Not until August did the Interstate Commerce Commission authorise a 6·6 per cent. increase for the United States as a whole. The railways regarded the award as altogether inadequate and quickly lodged an appeal for a further increase of about 7 per cent. After long pondering over the evidence given on behalf of the Association of American Railroads, the Commission in effect has admitted that the railways' original request was reasonable.

In January two bills were introduced in the Senate with the object of quickening the present machinery for regulating the level of rates and fares. The bills were referred to the Senate Committee on Interstate & Foreign Commerce. Several representatives of the railways have testified to the Committee in support of the proposed amendments to the Interstate Commerce Act. Perhaps the outstanding statement was one submitted by Dr. J. H. Parmelee, Vice-President, Association of American Railroads, reviewing the trends in railway operating results during the past 30 years, with the aid of numerous statistical tables and graphic charts. "It is appropriate," Dr. Parmelee said in the course of his address, "to ask why the railroad industry is suffering from inadequate earnings in a period of general prosperity. I shall endeavour to show that it is not due to lack of traffic, nor to any failure to increase efficiency of operations, nor to an increase in fixed charges on outstanding railroad debt. It is due to the rapidly increasing and heavy burden of wages and material and supply costs, unaccompanied by corresponding increases in rates and charges, authorised as promptly as the need for such increased revenues becomes manifest."

A study of the statement has satisfied us that the author accomplished his purpose. Whatever influence his evidence may have with the Senate Committee, it gave a valuable survey of railway developments in the States, after the ill-starred period of Government control instituted during the first world war, and might serve as a model for the presentation of long-term statistics.

British Transport Commission Traffic Receipts

TOTAL traffic receipts of British Railways for Period 4, the four weeks to April 20, exceeded those for the corresponding period of 1951 by some £3,681,000, or 14 per cent. Comparison between the two years is complicated by alterations in rates and fares during the twelve months as well as by the incidence of Easter. Freight rates during Period 4 were roughly 20 per cent. above those in force in that period of last year, taking into account the increases *inter alia* of 10 per cent. from April 16 (hardly affecting the 1951 figure) and again from December 31, 1951. Merchandise, mineral, and coal class receipts for the period are all below those for Period 3 of this year, and respectively only some 4, 14, and 12 per cent. above those for Period 4 of 1951. The incidence of Easter no doubt was the main cause of this in the case of minerals and coal, but there seems to have been a considerable falling off in merchandise traffic not mainly attributable to the Easter holiday.

—	Four weeks to April 20		Incr. or decr.	Aggregate for 16 weeks		Incr. or decr.
	1952	1951		1952	1951	
	£000	£000	£000	£000	£000	£000
British Railways—						
Passengers	8,772	6,827	+ 1,945	28,017	25,763	+ 2,254
Parcels, etc., by—passenger train	2,683	2,443	+ 240	10,434	9,519	+ 915
Merchandise & livestock	7,773	7,482	+ 291	33,373	29,005	+ 4,368
Minerals	3,067	2,680	+ 387	13,000	10,517	+ 2,483
Coal & coke	7,669	6,851	+ 818	32,264	27,002	+ 5,262
	29,964	26,283	+ 3,681	117,088	101,806	+ 15,282
British Road Services ...	5,739	5,882	— 143	23,817	22,554	+ 1,263
Road Passenger Transport : Provincial & Scottish— Buses, coaches & trolleybuses	3,344	3,008	+ 336	12,221	11,105	+ 1,116
London Transport—						
Railways	1,409	1,232	+ 177	5,232	4,857	+ 375
Buses & coaches ...	2,991	2,505	+ 486	10,885	9,520	+ 1,365
Trolleybuses & trams ...	773	762	+ 11	2,847	2,972	— 125
	5,173	4,499	+ 674	18,964	17,349	+ 1,615
Inland Waterways—						
Tolls	72	65	+ 7	305	245	+ 60
Freight charges, etc. ...	91	85	+ 6	382	303	+ 79
	163	150	+ 13	687	548	+ 139
Total...	44,383	39,822	+ 4,561	+172,777	153,362	+ 19,415

Comparison between 1951 and 1952 British Railways passenger receipts for the period is affected not only by the Easter holiday, but also by the fare alterations in the London Area from March 2 last. Passenger receipts this year exceed those for Period 4 of 1951 by no less than £1,945,000, or 28 per cent., and at £8,772,000 compare favourably with £6,860,000 for Period 3. When allowance is made for increased takings at Easter, this year, the application of the Passenger Charges Scheme, 1952, in the London Area seems to have added considerably to revenue; the full passenger statistics, however, must be studied in due course to form any judgment.

London Transport receipts were only some 15 per cent. in excess of those for last year, 14 per cent. in the case of railway, and 19 per cent. in the case of buses. There is no obvious reason for the discrepancy between this and the much steeper rise in British Railways receipts compared with 1951, and the analyses of passenger traffic must be awaited.

Receipts of British Road Services at £5,739,000 compared with £6,294,000 for Period 3, and with £5,882,000 for Period

4 of last year. In view of rate increases during the year, Easter seems to be a main cause of reduced receipts.

PERCENTAGE VARIATION 1952 COMPARED WITH 1951

	4 weeks to April 30	16 weeks to April 30
British Railways—		
Passengers	+28·4	+ 8·7
Parcels	+ 9·8	+ 9·6
Merchandise & livestock	+ 3·8	+15·0
Minerals	+14·4	+23·6
Coal & coke	+11·9	+19·4
Total	+14·0	+15·0
British Road Services	− 2·4	+ 5·6
Road Passenger Transport	+11·1	+10·0
London Transport—		
Railways	+14·3	+ 7·7
Buses & coaches	+19·4	+14·3
Trolleybuses & trams	+ 1·4	− 4·2
Total	+14·9	+ 9·3
Inland Waterways	+ 8·6	+25·3
Aggregate	+11·4	+12·6

Tasmanian Government Railways

THE report of the Tasmanian Commissioner for Transport, Mr. S. Wilson, for the year ended June 30, 1950, shows an increase of £104,480 in the loss on working. The operating ratio rose from 142 per cent. to 152 per cent. The principal results appear in the table below:—

	1948-49	1949-50
	(thousands)	
Passenger journeys	3,295	3,230
Passenger train mileage	1,087	1,030
Goods and mineral tonnage conveyed	775	743
Goods ton-miles	67,328	67,738
	(thousands)	
Passenger revenue	193	164
Goods traffic revenue	785	816
Total operating revenue	1,047	1,049
Working expenses	1,486	1,592
Loss on working	439	543
Interest and depreciation	245	263
Deficit	684	806

Although passenger traffic as a whole decreased 1·9 per cent., suburban journeys again rose and now are 56 per cent. of the total. A coal strike was responsible for most of the decline of 4·2 per cent. in goods traffic. Increased freight rates, of 10-33⅓ per cent., were approved and came into force on July 1, 1950.

A new station at Hobart has been authorised to replace the existing building erected in 1876, and work has begun on a new marshalling yard at Conara Junction. Alterations have been carried out to station buildings.

As a result of increased wages and rising costs of materials, working expenses rose by £116,408. Four cost-of-living adjustments during 1949-50 will add £72,500 to the wages bill for 1950-51.

As part of the post-war modernisation programme, £2,014,600 worth of orders for motive power and rolling stock had been placed up to June 30, 1950. Two of the 32 diesel-electric and four of the six diesel-mechanical shunting locomotives on order in the United Kingdom were in service by the end of the period covered. When most of the steam locomotives also being built in Great Britain have been delivered, by June, 1952, the Department should have sufficient locomotives for the first time for many years. The six new articulated railcars are operating faster schedules between Hobart and Launceston; the journey time has been cut by 36 min., and by 45 min. in the reverse direction. A programme of carriage and van modernisation has been approved, and expenditure of £750,000 on new wagons has been authorised.

The report of the committee appointed to inquire into the administration of the Transport Commission and the plans of the Commission to engage in road passenger services was tabled on September 13, 1949. Following it, the Transport Act (No. 2), 1949, was passed. It upholds the recommendation of the committee that the railways continue to cater for passenger and goods traffic, on improved timetables, with modern means of locomotion.

Incentives in Railway Civil Engineering

THE present financial state of the nation and of British Railways in particular, and the high cost of labour, increase more than ever the importance of the railway civil engineer's task of planning the economical use of manpower. It is made more difficult because full employment gives labour the option of choosing comparatively congenial work indoors under modern factory conditions rather than the all-weather and heavy manual work of the Engineering Department. For this reason supplementing standard wages as a reward for work done in excess of a standard task assumes greater significance in that department than in others, or, indeed, than in most other industries. Furthermore, only by such incentives can suitable labour be attracted and retained, and economy in manpower achieved. The importance of this matter was brought out by Mr. G. C. Stevens in "Economy through Labour Productivity and Incentive Schemes," his introductory note presented for discussion at the Institution of Civil Engineers on November 13, 1951, under the general heading "Economy in Railway Civil Engineering."

At the outset he warns that though incentive schemes can achieve excellent results in economy of labour, high productivity, and in retaining labour, their withdrawal, once they have been introduced, is almost impossible and their modification most difficult to negotiate. It is essential, therefore, that engineers with experience of the basic principles of the study of human effort, or "time study," should be consulted before any such scheme is launched.

The first problem is to fix a standard measurement of work done, or an allowable time for each operation, as a sound basis on which the incentive scheme can be devised. It cannot be based on the existing productivity of a particular group of men, as it has to apply to many groups who may be more or may be less efficient. The allowable time or "allowable minute"—generally known as "A.M."—value for any operation must, therefore, be fixed as a result of several studies of different operators or groups, from which a reliable productivity figure per hour can be deduced.

Mr. Stevens states that research and experience show that no incentive less than one-third of a man's normal wages will induce him to give of his best, and that the average "best" of a group of men is about 80 A.M's of work an hour. For straight day-work, 40 A.M's an hour is a common average productivity factor, so that if the basic task is set at 60 A.M's an hour, and if the individual is working at a steady 40 A.M's an hour, a 50 per cent. increase in productivity is necessary before any bonus payment can be earned. The existing productivity factor of the group must therefore be carefully considered if small increases in productivity are to receive any immediate reward. In practice increases in productivity of 50-60 per cent. are the general rule, but 100 per cent. is not unusual. Unfortunately, no bonus scheme has yet been devised for supervisors, who may be drawing considerably less in wages a week than the men on bonus work under them. Moreover, they lose when incentive schemes for the men are in force, because overtime working is then reduced.

Once an incentive scheme is in force, the A.M. value of all standard work is known, so that specific jobs can be accurately allocated, and the time required to complete each can be assessed. As each bonus worker has to complete a daily work sheet showing completed tasks and any unavoidable delays, and as a weekly analysis sheet shows total wages paid and the actual hours worked, a day-to-day and week-to-week control is possible. Incentive methods have been applied to a wide variety of tasks, and in every case—even after allowing for increased administration charges—the financial savings have been at least equal to the additional payments made to the operators.

D

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The Ford Accident

April 25

SIR,—Mr. C. McK. Cray, in his letter on the Ford accident in your April 25 issue states that "there is no check at the multi-aspect signal in rear (displaying single-yellow)." This is rather self-contradictory and misleading. Around London Bridge there is a four-aspect scheme in operation, the sequence being, green, double yellow, single yellow, red. A driver must be prepared, on a single yellow, to stop at the next signal. In the ordinary course of events he gets two warnings (checks) of an approaching red—first double-yellow, then yellow. This, I believe was not so at Ford.

On the subject of train-to-station telephone, referred to in The Scrap Heap in the same issue, wireless telephony is used considerably in the United States between driver and guard; train and adjacent stations; and nearby trains. The range may be six to 12 miles, further on occasions. It is also used when storm damage puts the lineside physical circuit out of use.

Yours faithfully,

COURTENAY BARRY

The Old Manor, Salisbury

Southern Steam Services in Electrified Areas

May 3

SIR,—Your correspondent's letter in your April 25 issue on the Oxted line services is a reminder of the difficulties of working the remaining steam trains in an otherwise electrified area. At present these services are maintained either by sandwiching a few steam trains between the electrics, or else working them as an extension of an already over-long outer suburban run. There is a tendency to concentrate all traffic on main routes, and alternative routes have become neglected because they cater only for local traffic instead of the through traffic which could make them remunerative and provide some relief for the main lines. The Meon Valley line from Alton to Fareham and Gosport was built for fast trains, and could attract regular traffic if the journey time to Waterloo were reduced, but worked as an extension of the Waterloo-Alton electric service, which takes 80 min. for 46¼ miles, and involving a change at Alton, it cannot expect to attract through traffic.

At Rickmansworth, London Transport overcomes the problem of changing from electric to steam haulage at Rickmansworth by using steam-type stock fitted with pick-up shoes for running over the electrified sections behind electric locomotives. For the Southern, alternatives to this method would be: (*a*) the use of trailers attached to the electric trains (as was previously done with the three-coach units), the trailers being worked forward by steam engine; (*b*) haulage of the electric multiple-unit by steam engine—the extra weight would be a high percentage, but probably not excessive with a two-coach train; (*c*) the addition at the changeover point of a vehicle carrying a generator which would provide power for the multiple unit motors. Both (*a*) and (*b*) would be facilitated by using former L.B.S.C.R. locomotives which still retain Westinghouse brake equipment. Each system has its drawbacks, but the adoption of one would solve the integration problem and allow a greatly improved train service on several neglected lines.

On the Redhill-Guildford-Reading section some economies and improvements in working could be made in the Farnborough area by constructing a spur from near milepost 36½ between Camberley and Frimley to join the adjacent Reading-Guildford line, and a spur at Ash to allow running from North Camp to Aldershot. The Ascot-Aldershot electric trains would be diverted to this route and the four miles from milepost 36½ through Frimley to Ash Vale Junction abandoned. Farnborough North might be renamed Frimley. The spurs from Frimley Junction to the main line would also be abandoned and be replaced by a spur on existing formation from Farnborough North to the main line. The west curve at Frimley Junction is little used, and in view of the possibility of direct running from Ascot to Guildford *via* Ash and other improvements in routing it might not be considered necessary to provide the spur at Farnborough.

This arrangement would leave about ten miles (from North Camp to Wokingham) between Reading and Guildford not electrified. Probably the electrification of this section could be completed without the need for additional substations. An electric shuttle service between Reading and Guildford could be instituted. Reigate to Guildford might become an extension of one or other of the electric services to those places.

The Reading-Guildford-Redhill route, with its connecting lines, might be better patronised if connections from Reading were shown in the main line Western Region timetable. Reading South (the new name) also suggests somewhere remote like Reading West. In fact the old Great Western (now Reading General) and Southern (Reading South) stations stand side by side.

Yours faithfully,

R. G. R. CALVERT

10, Bolton Avenue, Windsor

Western Region Locomotive Cleanliness

April 28

SIR,—My train to London today (the 9 a.m. from Snow Hill) was pulled by *Windsor Castle*, looking a little "off colour" after a weekend away from Old Oak Common. On the way home I saw *Bristol Castle* at Banbury with a magnificent Swindon shine; it carried the monomark of the Worcester shed.

As one who in your columns has been critical of grime-encrusted engines, may I add how satisfying it is to note the Great Western polish on Western Region locomotives once again. There were many "sights for sore eyes" at Paddington today.

To complete two journeys marked by energetic locomotive work, the Wolverhampton driver on the 4.10 p.m. down ran from Banbury to Leamington, start-to-stop, in 21 minutes dead.

Yours faithfully,

GILBERT DALTON

18, Milverton Terrace, Leamington Spa

Efficiency of Diesel Locomotives

May 1

SIR,—With reference to Mr. Koffman's article in your April 11 issue on efficiency of diesel locomotives, is not the paragraph on fuel oil for diesel traction and fuel oil for firing the boilers of steam locomotives, regarded as being the same, rather misleading and out-of-date? Apparently he is quoting from G. V. Lomonosoff (1933) but today it is well known that the high-speed diesel requires gas oil or a light diesel oil, processed or prepared for the purpose which nobody would think of putting "under a boiler." For the steam locomotive, Bunker "C," or a low grade of residual fuel oil is used, costing in the United States at the present time ¼ to ½ cent per pound—"down in the range of prices of rock and gravel" to use the words of the oil companies.

Yours faithfully,

W. C. IKESON

Mechanical Department, Iraqi State Railways, Baghdad

PUBLICATIONS RECEIVED

Kempe's Engineer's Year-Book, 1952. Vols. I and II. 57th edition. London: Morgan Brothers (Publishers) Limited, 28, Essex Street, Strand, W.C.2. 7 in. × 5 in. 1,467 pp. and 1,440 pp. respectively. Illustrated. Price 70s. each (plus 1s. 6d. postage).—The technical sections of the 1952 edition of this encyclopædic work have, as usual, been revised, so as to include the latest data in all branches of the engineering industry, and provide a most comprehensive survey of the latest practices. Apart from the many alterations and additions to the text, the chapter on fuels has been revised and rewritten by the Fuel Research Station. The electrical engineering section has undergone a major revision in accordance with the Wiring Regulations, 12th Edition, of the Institution of Electrical Engineers, together with new codes of practice. The railway engineering section has been revised with new diagrams and illustrations, while the timber section has been extended to include plywood. The many articles have been contributed by specialists in their particular subjects and the work as a whole is a valuable addition to engineering text books.

The Art of Administration. By Ranald M. Findlay. London: Oliver & Boyd, 98, Great Russell Street, W.C.1. 7½ in. × 5 in. 107 pp. Price 7s. 6d.—The author, drawing on his experience in politics, journalism, Government service, and other spheres, and on many writers on the subject, outlines the theory of management. He colours his sketch with the wit and wisdom of a composite character, Meredith John, "one of the great administrators of our time." The treatment necessarily is general and theoretical, especially as regards man management. Mr. Findlay postulates considerable manpower resources in the business and other undertakings concerned.

Géographie des Chemins de fer d'Europe: Tome II, *Vol.* 1, *Suisse-Italie.* (Geography of European Railways: Vol. 2, Part 1, Switzerland-Italy.) By H. Lartilleux. Paris 9e: Librairie Chaix, 20, Rue Bergère. 11¾ in. × 8 in. 283 pp. Fully illustrated. No price stated.—The first volume, in four parts, of a work which under the title "Géographie Universelle des Transports" (Universal Transport Geography) will ultimately cover the railways of the world, dealt with the railways of France and the French Union. Volume 2 will describe the railways of Europe (except the U.S.S.R.), and in Part 1 of this volume now published the author surveys those of Switzerland and Italy. The systems of the two countries have many features in common. The penetration of the Alps and Apennines required bold engineering, including tunnels which are the longest in the world and ingenious spiral locations. The tourist traffic of both is important and well catered for. The difficulty of working heavy trains over mountainous routes and the absence of coal early prompted the two countries to try electric traction, but while Italy has adopted 3,000 V. d.c. for all new work, and is converting existing a.c. lines, Switzerland has adhered to a.c., at 15,000 V. Both countries are also the seat of considerable industries bringing heavy freight traffic to the railways, which also handle much transit traffic. There are numerous secondary, interurban, and mountain lines, mostly electrified, and widely diverse in motive power and methods of operation. All find a place in this work, which has many maps and a fine collection of halftone illustrations, and is comprehensive enough to include the chief urban transport systems and even the chair-lift, the latest form of mountain scaler.

Elastic Rail Spikes.—Details regarding the securing of flat-bottom rails by the use of elastic rail spikes are given in Bulletin No. 9, recently issued by the Elastic Rail Spike Co. Ltd. Designed to absorb rail movement, the spike flexes under wave motion of the rail and maintains pressure on the rail base thus resisting rail creep in either direction. Various types of spikes are available, all of which are treated to prevent corrosion. The illustrations show permanent way on British and overseas railways together with the method of the driving and removal of rail spikes.

The Story of Mond Nickel. By A. C. Sturney. London: The Mond Nickel Co. Ltd., Sunderland House, Curzon Street, W.1. 9½ in. × 6½ in. Illustrated. No price stated.—In August, 1890, a paper presented to the British Chemical Society by Ludwig Mond, Carl Larger and Friedrich Quincke announced the discovery that a gaseous compound of nickel and carbon-monoxide was formed by the reaction of the latter gas with finely divided metallic nickel. The elaboration of this discovery into a practical method of refining nickel on a commercial scale and the development of industrial applications of nickel during the first half of this century is the theme of this book, published to mark the jubilee of the Mond Nickel Co. Ltd. Ten years of effort and organisation by Mond and Larger lay between the scientific paper of 1890 and the formal registration of the Mond Nickel Co. Ltd. Mine property was acquired in Canada and a refinery erected at Clydach, near Swansea, where treatment of the copper-nickel matte began in 1902. The energy and foresight of the founders of the company has been matched by their successors, and this book is to some extent a record of personalities. It is equally a tribute to all who have worked through the years in establishing and developing the Mond Nickel Co. Ltd. The active direction of the company and the sturdy backing of its employees permitted its activities to be extended in the national interest far beyond its normal sphere in the second world war. Supremely important among its products in that period were platinum alloys for sparking plugs to give four or five times the normal length of service. But the development likely to be of most lasting importance was in the field of materials for gas turbines. Within 12 months of the problem being laid before the Company's Research & Technical Unit by the Air Ministry, a modified nickel-chromium alloy was offered which met all the requirements at that time. The development for industrial purposes of these Nimonic alloys, as the new materials were called, may well form a distinguished chapter in some future record of the Company's activities made at another milestone in its history.

Twist Drill Data.—The Sheffield Twist Drill & Steel Co. Ltd., of Summerfield Street, Sheffield, 11, has produced, printed in four colours on aluminium, a wall chart for workshop use. It is 30 in. wide by 20 in. deep, and contains British Standard twist drill nomenclature, tapping and clearance drill sizes, speeds and feeds, instructions on resharpening of twist drills, usage of twist drills, lubricants, and so on. Copies of the wall chart may be had on written application to the compilers.

Weldafume Unit.—A new exhauster, which removes heat, fumes, dust and slag created during welding operations, thereby contributing to improvement in local working conditions, and therefore efficiency, has recently been produced by Keith Blackman Limited. Known as the Weldafume, particulars of which are given in the company's leaflet No. 22, the unit is portable, consisting of a flexible nose and special asbestos base, with a fireproof cloth filter. The fabricated base, which is on castors, supports a three-phase or single-phase motor wound for standard voltages. The motor is arranged in the vertical position and drives a fan impeller.

Engineering Applications of Rubber.—In the April issue of *Torque*, the development journal of Silentbloc Limited and the Andre Rubber Co. Ltd., details are given of the use of Silentbloc bearings in two recent locomotive designs. Annotated views and diagrams are reproduced of the bogies, the resilient gearwheels and the draw-buff gear in the Metropolitan-Vickers gas turbine locomotive. In all, this design incorporates 80 Silentbloc bearings in different parts. Another use of Silentblocs illustrated in the same publication is in the body of the Southern Region diesel-electric locomotive, No. 10201, where they are adopted to provide a resilient mounting for the side panels over a length of 23 ft. so that flexing of the underframe does not strain the body sheeting when the engine and generator set is removed.

THE SCRAP HEAP

Stay-at-Home Scots

In 1950 the Scottish people made only 63,429,000 passenger journeys. The Swiss, in a smaller country with fewer people, made three or four times that number. The Scots make 30 per cent. fewer railway journeys than the people of Britain as a whole.—*From a letter to "The Scotsman."*

Organised Smuggling by Rail

An extraordinary discovery was made recently by the German customs at the frontier station of Lindau (Lake of Constance), when concealed casings were detected in the backs of seats of two Swiss third-class through coaches attached to the Geneva-Zurich-Munich through train. They were found to contain thousands of cigarettes, tinned coffee, and coffee beans. It is believed that wholesale smuggling has been carried out on this route for some time, and that, to judge from the ingenious design of casing, the affair has had the connivance of railwaymen, as it must have taken time at both ends of the journey to open and close the casings. The coaches have been detained by the German customs to discover whether they contain more *caches* for smuggled goods.

End of a 2-4-0 Tank Class

News that British Railways (London Midland Region) locomotive No. 58092—the last of fifty L.N.W.R. class "STP" 2-4-0 tank engines with 4 ft. 8½ in. driving wheels—has now gone into Crewe Works to be broken up, recalls that one of the series (No. 2233) marked a milestone in the history of Crewe Works in that it was the 2,000th to be built at that establishment. These locomotives were built in 1876-7 and 40 were later converted to 2-4-2 tanks.

All were long-lived engines, some of which worked on the Cromford & High Peak line. No. 58092 was number 2278 when built and became No. 6428 in 1928, and 26428 in 1948. Under the British Railways renumbering in 1951 it became 58092.

Now, after 75 years of service, the last years of which were spent on the Cromford & High Peak line between Sheep Pasture and Middleton Incline, No. 58092 has returned to its birthplace, Crewe Works, to be broken up.

Bridging the U.S.A.

If placed end to end, all bridges used by railroads [in the United States] would extend a distance of about 3,750 miles, or from New York to Los Angeles with about 500 miles to spare.—*From "Streamliner," the journal of the Electro-Motive Division of General Motors.*

Feline Fancies

The story in the "Scrap Heap" of April 18 about free travel by a pet dog reminds a correspondent of a much-travelled cat who was a highly respected member of the staff of Exeter Goods Station, L. & S.W.R., during the early 1920s.

This animal was wont to sleep in the straw in otherwise empty earthenware crates, which practice on one occasion involved him in a 120-mile trip to Templecombe and back. Subsequently, it is believed, he got as far as the Potteries in a through wagon, from which he also safely returned. Stories of this kind generally bring in a third case, but this time the cat finally disappeared. He was seen prowling round a wagon for Bristol, but never again, and inquiries at Bristol brought no news of him.

A story was told at Exeter of another cat some ten or more years earlier. This cat became an *ersatz* Manx through his tail being in the same place at the same time as a wagon wheel! However, the wound was cauterised and this animal, with eight lives still in hand, lived for many more years' honoured ratting and mousing.

Cheap First Class Fare

A holder of a first class fortnightly all-lines season ticket on the Victorian Government Railways recently covered 3,353¾ miles in fourteen days. His ticket cost him £10 13s., so that the price of his first class travel worked out at the remarkably low rate of only ¾d. a mile.

Round the Station—3

Wheel-Tapper Joe

I'll sing you a song of the permanent way,
Of platelayers, lengthmen, and experts who say
Whether points are just so, and what plates one should lay,
But first let me sing about Wheel-tapper Joe.

Joe tackles each wheel in a dignified manner,
With long-handled hammer and oil-can and spanner,
For "wheels are like notes on the old grand pianner,
"They've got to ring true," says Wheel-tapper Joe.

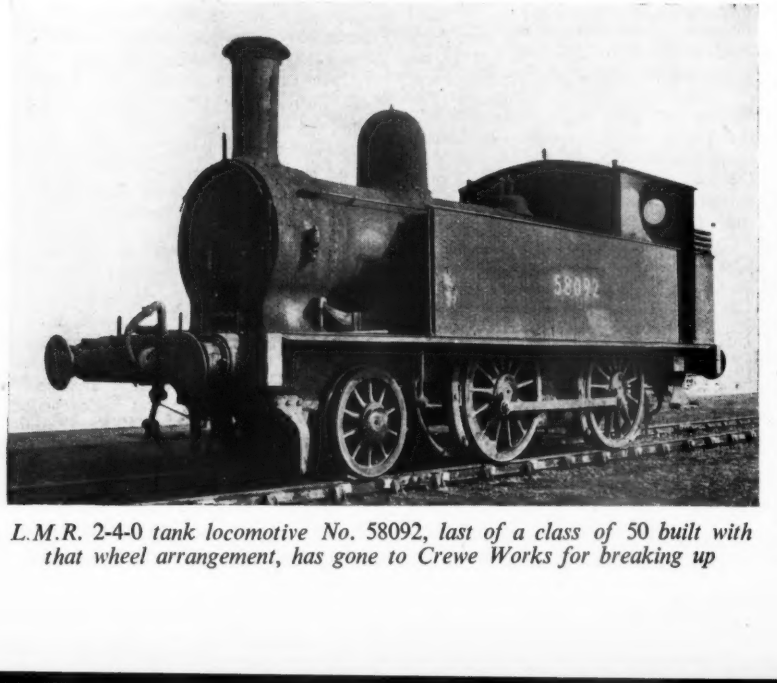
Wheel-tapper Joe compains with some unction
About "Hot Box Harry" at Dimbledown Junction,
Who passes the buck without any compunction
And doubles the work of Wheel-tapper Joe.

Come summer, come winter, Joe sticks to the track,
Half hoping, half fearing he may find a crack—
"I'll give the old wheel just another good smack,
"You never can tell," says Wheel-tapper Joe.

For years I have wondered—I would like to know
How Joe would react, if, instead of a "soh,"
Some old wheel replied with a dull, dismal "doh!"
But I haven't the nerve to ask Wheel-tapper Joe.

I look in Joe's face, weather-beaten, benign
And thank the good Lord for these men on the line,
Who care for our safety in hail, rain, or shine;
"Good luck and God bless you!" old Wheel-tapper Joe.

A. B.



L.M.R. 2-4-0 tank locomotive No. 58092, last of a class of 50 built with that wheel arrangement, has gone to Crewe Works for breaking up

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Fare Revision

When Mr. P. O. Sauer, South African Minister of Transport, presented the Railway Budget recently, he said that on the recommendation of the Railway Rating Policy Committee, a departmental committee had been appointed to inquire into the financial state of suburban passenger services. Its investigations showed that revisions in the suburban fare structure could not be avoided. Internal air fares would have to be reviewed to bring them more into line with increased costs of working.

With a few minor exceptions, the Administration had decided to accept the recommendations of the Newton Committee on railway rating and the tariff book was being revised. Concessionary rates would be abolished. This would affect the "economies" of some businesses, but the purpose of the rates revision was to place the tariff structure on a sound basis and in keeping with the development which has taken place since the present tariff system was formulated. In the last few months of 1951-52, weekly earnings had exceeded £2,000,000 on more than one occasion.

Estimates for 1952-53

After explaining the allocation of the 1951-52 surplus, expected to be £7,606,000, as reported in our April 4 issue, the Minister of Transport gave the following estimates for 1952-53:—

	Revenue	Expenditure
	£	£
Railways	115,142,000	115,127,000
Harbours	6,445,000	4,636,000
Steamships	504,000	438,000
Airways	4,177,000	4,366,000
Aerodromes	108,000	107,000
	126,376,000	124,674,000

From this estimated surplus of £1,702,000 appropriations totalling £1,211,000 had to be deducted for the betterment fund and to meet the deficiency in the pension and superannuation funds. The net surplus would be £491,000.

UNITED STATES

Passenger Train Losses

The continued loss of revenue by many railways in the maintenance of passenger train services, in which any profit from the operation of the heavily patronised long-distance trains is more than wiped out by the loss from subsidiary main line and branch line working, is engaging special attention. Recently Mr. Gustav Metzman, President of the New York Central System, announced that a well-known firm of consultants had been engaged to look into every phase of N.Y.C. passenger traffic operation with a view to attracting more traffic to the trains, and discovering, and if possible eliminating, the losses now incurred. It is understood that the Pennsylvania Railroad is engaging the same consultants for a study of Pennsylvania traffic conditions.

New Railway in Georgia

The Georgian legislature has granted a charter for the construction of a new railway, 229 miles in length, to be called the Georgia Southeastern and serve the area between Atlanta and Savannah, in which many communities have no direct rail communication with the principal Georgian cities. A beginning is to be made with 34 miles of line between Swainsboro, on the Georgia & Florida Railroad, and Statesboro, on the Central of Georgia. At first local freight traffic only will be carried, but later it is intended to introduce passenger traffic, using diesel-hydraulic railcars of the new RDC type. The Southeastern will cut 30 miles from the present shortest route between towns on the new route that are already served by railways, and, the promoters claim, will be effective in reducing freight rates and passenger fares.

Fire Destroys Shops

On March 12 a fire that broke out during a snowstorm destroyed the coach repair shops of the Bamberger Railroad, which operates an electric service over 36 miles of line between Salt Lake City and Ogden. No rolling stock was in the shops at the time, but all the machine tools were lost, and in view of the difficulty of replacement, the company is considering replacing the rail services by buses, in conjunction with the associated Bamberger Transportation Company, which already operates a bus service in the area.

More Dieselisation

On February 29 the St. Louis-San Francisco Railway completed the dieselisation of its entire system, covering 4,925 route miles of line. The changeover from steam to diesel power has taken no more than five years, during which time 407 diesel units have been purchased (23 passenger, 12 combined passenger and freight, 123 freight, 144 all-purpose, and 105 yard-shunting units). The consequent improvement in operating performance raised the gross ton-mile per train-hr. figure from 32,703 in 1947 to 41,644 in 1951, when no more than 86 per cent. dieselisation of the freight service had been achieved; at the same time gross tons per train-mile rose from 1,670 to 2,346.

Early in April, with the delivery of 16 combined road and shunting diesel units, the 1,824-mile Texas & Pacific Rairoad, a subsidiary of the Missouri Pacific extending from New Orleans through Dallas and Fort Worth to El Paso, also took its last steam locomotive out of service. On receipt of six 2,250 b.h.p. passenger units now on order the Chicago Rock Island & Pacific, a system extending to 7,031 route miles, will complete dieselisation of all regularly-scheduled passenger services, and by the end of 1952, when it celebrates its centenary, it also will be worked entirely by diesel locomotives, with the exception of the freight and shunting duties on one small division only.

Northern Pacific Oil Lands

Discovery of extensive oil deposits in Montana and North Dakota is likely to be of considerable benefit to the Northern Pacific Railway. In the Williston oil basin this railway owns or has mineral reservations in some 3,200,000 acres of the oil basin from which the first oil and natural gas are now being obtained. Two of the wells that are now producing oil are on land of which the N.P. is the holder of the reservation.

MEXICO

Diesels for Freight Haulage

Diesel locomotives have gone into service to speed freight movement between Mexico City and Nuevo Laredo and Mexico City and Veracruz. Three fast daily freight trains between Mexico City and Laredo will complete the journey in 34 to 38 hr. compared with the previous 72 hr. or more. Between Mexico and Veracruz two diesel-hauled freight trains now run; they will be increased to four daily, if required, to move rapidly all imports arriving at the port for Mexico City.

BRAZIL

Rio Suburban Traffic

The *Diario Oficial* of April 12, referring to the Rio suburban lines of the Central Railway, points out that the passenger traffic has grown from 72,000,000 in 1941 to 181,000,000 in 1950, and that the existing 91 train units, or 273 coaches, are no longer sufficient to handle it, particularly as 30 per cent. are always out of service. These coaches are intended to carry 200-220 passengers, the majority standing, and actually carry 369 during the busiest hours.

Paulista Railway

The Paulista Railway shows a profit on working in 1951 of 78,412,521 cruzeiros (£1,568,250), compared with Cr. 63,000,000 (£1,260,000) in 1950. A dividend for the second half-year at the rate of 12 per cent. per annum has been declared, taking Cr. 42,000,000 (£840,000). The remaining profits have

been apportioned to: reserve funds, Cr. 2,403,028 (£48,060); assistance to employees, Cr. 4,000,000 (£80,000); and profits carried forward to 1952, Cr. 30,009,493 (£600,190). The capital is quoted at Cr. 700,000,000 (£14,000,000) and reserves at December 31 last at Cr. 287,280,478 (£5,745,609). Receipts from railway services during the second half of 1951 amounted to Cr. 308,395,620 (£6,167,912), against expenditure of Cr. 265,209,089 (£5,304,182).

IRELAND

Wage Claims

Because of the many demands for increased wages which have been made both in the Republic and Northern Ireland since the introduction of the Budgets, the Executive Committee of the National Union of Railwaymen has decided to call on all organisations with members in the operative grades of C.I.E., the G.N.R.(I.), and the U.T.A. to meet and discuss the formulation of agreed proposals of demands on the companies.

Cruiser Trips on the Shannon

The Athlone Shannon Development Committee has bought a large motor-cruiser to provide tourist trips on the Shannon and Lough Ree. It will have accommodation for 100 passengers. The Irish Tourist Board and C.I.E. will co-operate in running the scheme.

SWITZERLAND

Coaches with Individual Seats

Two experimental coaches with individual seats, which Schweizerische Wagons-und Aufzugfabrik, of Schlieren (Zurich) will build for the Federal Railways, will each comprise a lounge and a bar compartment. Their accommodation will total 100 double seats and 20 individual seats.

Of the 64 railway vehicles which this firm delivered in 1951, the Swiss Federal Railways took 34 coaches, all standard-gauge.

Snow Sheds on Visp-Zermatt Railway

Operation of the Visp-Zermatt Railway throughout the year did not become possible until 1933 after the construction of snow sheds and galleries on some sections. In 1946, a further gallery, 230 ft. long, was built to cover a section of the line which still proves too exposed; it brought the total length of the protected sites to nearly 3,185 ft.

This Spring, work on another 1,970 ft., comprising protective tunnels and galleries, and a deflection wall, was begun. As the work has to be discontinued during the winter it will take about four to five years to complete the scheme. The new galleries will be situated on the final three-mile section between Täsch and Zermatt stations, which lie at 4,717 ft. and 5,265 ft. respectively. The increase in the cost of this work compared with that incurred about ten years ago is considerable.

The galleries and tunnels totalling nearly 2,952 ft. built in 1931-1933 cost about fr. 1,000,000, but that of the new works has been estimated at fr. 1,200,000 and that of the deflection wall at about fr. 25,000. Including the expenditure of fr. 130,000 for the gallery built in 1946 the total cost is fr. 1,355,000, borne in equal parts by the railway, the Confederation and the Canton of the Valais. A number of local authorities along the route will also make grants.

BELGIUM

Electrification

The National Railways, after examining the merits of the 20,000 V., 50-cycle system, have decided to go ahead with their already declared project to electrify at 3,000 V. d.c. some 1,500 km. of line, representing 30 per cent. of the total and carrying 70 per cent. of the traffic.

It was felt that the higher cost of the 3,000 V. system would be outweighed by the expense of eventually converting to 20,000 V. the existing 3,000 V. lines (Brussels Nord-Antwerp Central; Linkebeek-Antwerp Nord; and Brussels Midi-Charleroi Sud). In addition, the plans to electrify at 3,000 V. had almost been completed.

FRANCE

Paris Metro in 1951

The number of passenger journeys on the Paris Metro during 1951 amounted to some 1.031 millions, a decrease of 98,000,000 in comparison with 1950. The figure was still well above the 1938 level, when approximately 760,000,000 passenger journeys were originated. With regard to receipts a considerable rise was recorded, the fr. 13,232 million (rather over £13,200,000) taken in 1950 increasing by 15 per cent. to fr. 15,214 million (£15,200,000) in 1951.

Since 1949, the number of passengers carried has tended to fall each year, whereas the receipts have continued to rise. This is due to the inflationary trend in France and the periodical increases which have occurred in fare levels; during 1951, fares rose on two separate occasions, and at the end of 1951, second class fares were 43 per cent. above the level at the beginning of the year.

Small Containers for Living Plants

A considerable horticultural traffic originates from nurseries in the Angers region. Most consignments are despatched in small lots of less than a ton, and difficulty is experienced in providing adequate packing where such traffic is loaded in wagons with other goods. The S.N.C.F. has therefore provided a number of small containers with capacity of from 1 to 3 cu. m. (35 to 105 cu. ft. One side of these containers opens out as a door, and loading can be conveniently carried out from this side.

It is now the practice to load all consignments of shrubs in pots and many other types of plants, moving in consignments of more than 4 cwts., in these small containers. This not only ensures that the traffic reaches its destination in the best possible condition, but has also greatly reduced the cost of packing. During the 1950-51 season, one station alone in the Angers area despatched more than 550 of these containers, and to enable a good turnround to be maintained, the nurseries using this service gave to the S.N.C.F. an estimate of their needs at fortnightly intervals.

WESTERN GERMANY

Grossenbrode-Gedser Ferry

With the construction of a second ferryboat under way, new harbour facilities will be built at Grossenbrode this year. The new 350 ft. boat, of 5,000 gross tons, will carry three tracks. The line between Grossenbrode and Lubeck is being improved and re-signalled. Two new expresses (Stockholm-Rome and Copenhagen-Paris) will be put into service on this route in 1953.

Concrete Building Developments

With the aid of locomotive cranes for erection purposes, the Federal Railways' engineers have recently been using increasingly large reinforced concrete sections for building stores, goods depot, and other buildings. In one goods shed, for instance, 80 reinforced concrete girders, each 56 ft. long and weighing 2½ tons, were pre-cast on the floor of the building at the rate of five a day, and placed on pre-cast stanchions by crane. In constructing the roof and ceilings of a stores building, thin slabs were cast at the rate of 90 to 120 sq. in. a day. The slabs weighing from 6½ to 8½ tons each were then placed by crane.

Summer Passenger Services

Besides the " Rhine Arrow," between the Hook of Holland and Basle, mentioned in our issue of October 19, 1951, new services to be introduced on May 18 will include the " Rhine-Main Express " giving a journey time of just over 7 hr. between Frankfurt and Rotterdam *via* Mainz, Bonn, Cologne, Düsseldorf, Emmerich, and Utrecht; the running time between Mainz and Cologne, some 116 miles, will be 2 hr. 22 min. northbound and 2 hr. 20 min. southbound, with three stops, many curves, and speed restrictions over war-damaged bridges and culverts.

A new service between Britain, Holland, and the Scandinavian countries, known as the " North West Express," will operate between The Hook and Fredericia *via* Hamburg and Flensburg, in connection with the Harwich-Hook day service; at Fredericia connection will be made with diesel trains to and from Copenhagen *via* the Great Belt ferry.

British Railway Interests in Cuba

Changed political situation may facilitate a settlement between the Government and the United Railways of the Havana

(From a Correspondent)

THE United Railways of the Havana & Regla Warehouses Limited was constituted under British Law in 1898 to take over and construct various railways and other productive enterprises in Cuba. The railways operated by the company are in the western part of the island and make up an efficient network which, with electrified suburban services, should permit the company to serve the Cuban public well.

Unfortunately the position of the company has become increasingly difficult over a term of years. The railways, though they carried large quantities of sugar and tobacco during the busy seasons, and did well until about 1929, have never been rich, and the company has seldom been able to pay dividends on its ordinary shares. During the inter-war period this was mainly due to the growth of unregulated road competition as the road system in the western part of the island was created.

In the latter part of the inter-war period, the Cuban Government failed to pay its bills to the company for the carriage of Government traffic, but payment of them is now being made.

Unregulated Road Competition

During the war, shortage of petrol in the island, and the necessity of convoys for shipping, concentrated export traffic on the two ports of Havana and Santiago and made rail transport imperative. As a result the United Railways, and the Consolidated Railroads, the American company operating in the eastern half of the island, were strained to the uttermost, for freight traffic was more than doubled. A large increase in railway staff was necessary, and the locomotives and rolling stock became run-down.

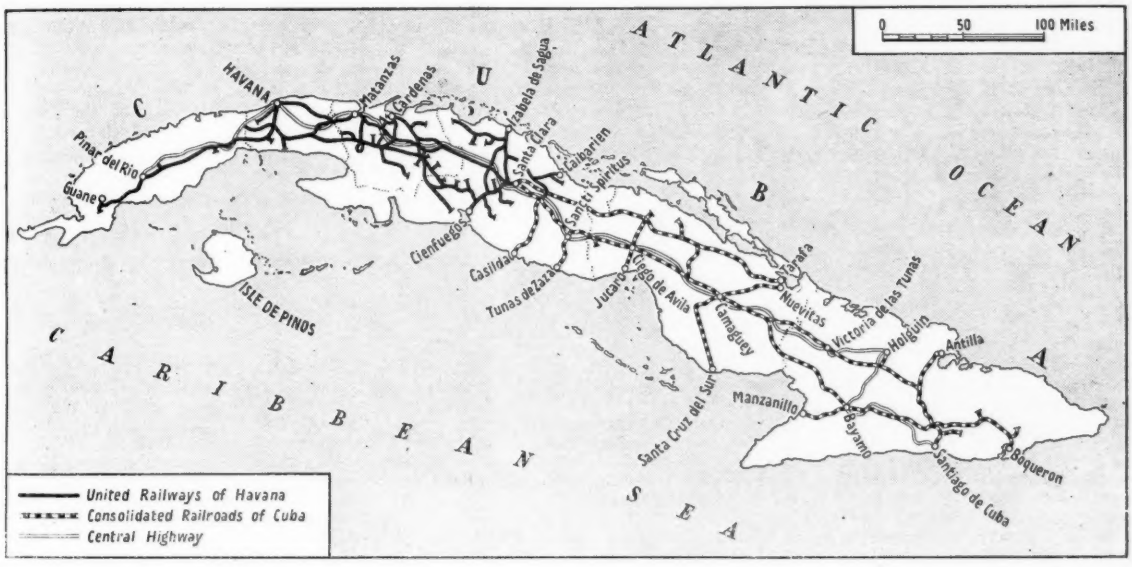
The United Railways certainly made profits during this period, but these had largely to be devoted to rehabilitation of the railways at the end of the war. The Cuban Government by this time owed $4,250,000 to the company for services rendered, and an additional sum of $8,500,000 for land belonging to the company which had been expropriated by the Cuban Government without compensation.

After the war road competition returned, but the United Railways' main problem now was the refusal of the Government, under Trade Union pressure, to agree to the reduction of the staff from the wartime peak to the number actually required to work the shrunken post-war traffic.

By June, 1949, the United Railways could no longer pay their wage and material bills and, in the normal Cuban manner, the Government then put in an Interventor, or Receiver. When his powers became plenary, the General Manager of the United Railways and certain senior officers were withdrawn by the company under legal advice, and for the last three years have taken no part in the administration of the railway.

The Interventor (Senor Felix Alonso Tapia), a lawyer by profession, has made genuine efforts to put the railways on a more prosperous basis, but the conditions have been too much for him and the annual losses of the United Railways which, in 1949, were $600,000 a year, are now in excess of $3,000,000 a year.

The condition of the property has also deteriorated in an alarming degree. At least three-quarters of a million new sleepers are required, while low rail-joints, blocked drains, and weedy and dirty ballast present a major problem of neglected maintenance. The rolling stock, old as it is, has been maintained in reasonable condition, and some purchases of second-hand locomotives and rolling stock from the United States have given assistance. Up to the present the Government has been paying the annual operating losses of the United Railways out of the sum set aside to meet the Government's indebtedness to the company, but this is now almost exhausted.



The two main railway systems of Cuba

International Bank's Report

The Cuban Government had arranged for a mission from the International Bank to investigate the economic affairs of Cuba. The railway problem was its first interest and it considered that the position was

of such urgency that it brought out a special interim report on the matter early in 1951. This report (referred to in our March 16, 1951, issue) is of wide and general interest to all those connected with railways. It surveys the problem as a whole; shows why it would be against Cuba's interest to abolish railways in favour of road transport despite the shortness of many of the hauls; and then makes, with remorseless clarity, a diagnosis of the causes of the present situation.

The report then goes on to recommend that the best cure would not be nationalisation, but the formation of a holding company, for the operation of both the United and the Consolidated Railways by a board on which representation would be granted both to the Government and to the sugar interests, the major users of the railways. The report stipulated, however, that this was dependent on suitable legislation being initiated by the Cuban Government which would not only guarantee Governmental support and favour for the new company, but would also allow the Government to pay its debts to both railways, regulate road competition in a normal manner, and agree to a reasonable transfer of redundant staff to other occupations.

The Cuban Government received and considered this report but gave no indication whether its recommendations were favoured. Indirectly, however, its reply was in the negative, for shortly after the reception of the report the Railway Trade Union held mass meetings which recommended that the United Railways should be nationalised, though with the proviso that its members should be treated as employees of private enterprise and should not become Civil Servants. The President then made a personal promise that he would advocate the nationalisation of the United Railways. There was no chance of getting such a Bill through Congress and it appeared that the President was merely making a political gesture in preparation for the Presidential elections held in June, 1952.

Cuban Concern over Problem

Meanwhile many prominent Cubans were becoming increasingly concerned with the problem of the United Railways. They said that Britain and Cuba had had centuries of amicable commercial relationship and that this was the first occasion on which they could feel no pride in Cuban management of such affairs. The British company, they felt, had not handled matters in the best possible way. Originally, in their opinion, the company had been too unbending, but latterly it had gone to the other extreme. It was their view that the company should have forgotten its foreign status and have pressed its claims in the Courts and by public appeal to a greater degree than it had done.

The picture has now changed in Cuba, for recently General Batista, the Opposition Leader, staged an almost bloodless *coup d'etat* which in seventy minutes seated him in the Presidential chair. Just before this event the late President, after proposing an export tax on sugar to finance the purchase of the United Railways, had been in conference with the sugar interests to urge them to buy out the British company. General Batista would undoubtedly wish to make a settlement of this thorny problem before the June elections, and one of his first actions has been to convene a meeting with the sugar interests to discuss the United Railways. The sugar interests are naturally reluctant. They have railway transport at present at the company's expense, and can see no advantage in saddling themselves with an unprofitable enterprise.

Britain can no longer afford to dissipate her assets as she has been doing in recent years. The large amount of capital invested in the United Railways is undoubtedly British capital and the Briton has always had the reputation of standing up for his own rights and property. The Cubans are good friends of the British but they feel that, as Cubans, it is not for them to support the British shareholder of the United Railways if he will not stand up for himself. The present clean slate therefore presents an excellent opportunity for a new approach either for justice to the present company, or for the agreement of the Cuban Government to adopt the solution of the International Bank.

B.R. Containers at Liege Fair.—British Railways have provided three exhibits for the International Container Exhibition at the Fourth Liége International Fair, which opened on April 26 and continues to May 11. The "AF" type container on show is a very highly insulated design of 3 tons capacity, for conveyance of quick-frozen foodstuffs, fruit and refrigerated goods. Another exhibit is the 4-ton "L" type container, for carrying limestone, cement, and similar materials in bulk. It is fitted with a bottom door. The third container displayed is the "BM" type, which is ventilated and fitted with bars and hooks, for carrying fresh-killed meat. The capacity is 4 tons. These exhibits demonstrate the collaboration of British Railways with the railway administrations of Western Europe in arranging door-to-door transport.

Glass-Resin Plastics Convention.—On May 13 and 14 a convention, the first of its type to be held in this country, will meet at Leamington, to discuss the manufacture, application and future of glass-reinforced plastics. The organiser is Fibreglass Limited, the largest British manufacturer of glass fibres, and there will be delegates from all glass-fibre manufacturing firms, resin manufacturing firms and research departments of industry and the services. Sir Hugh Chance, Chairman of Chance Brothers, will preside and a number of papers will be read. Commercial production of glass-reinforced plastics was greatly stimulated by the war. The field of applications has widened since, particularly in the U.S.A. The advantages offered by glass-resin plastics include the combinations of physical properties not obtainable in other materials, simple manufacturing techniques, and the fact that both the resins and the glass reinforcement are made from raw materials which are more plentiful than metals.

York Exhibition of Handicrafts.—A Leisure Hour Exhibition and Competition, open to the 3,200 members of York Railway Institute, was held on March 20 and 21. Included in the 200 exhibits were many striking examples of handicraft and photography by both sexes, and the basket, leather and needlework of the women competitors produced high praise both from the judges and the general public. The exhibition was opened by Mr. H. A. Short, Chief Regional Officer, North Eastern Region, British Railways, and the prizes were presented by Mrs. Short. Mr. E. W. Arkle, Commercial Superintendent, North Eastern Region, and Mrs. Arkle also attended.

Storage Batteries for Industry.—Exhibits of the Tudor Accumulator Co. Ltd. at the British Industries Fair will include a switch-tripping unit, a Safetylyte automatic emergency lighting set, and a range of cells for all stationary, traction and marine duties. The switch-tripping display represents equipment widely employed for small installations for tripping circuit-breakers at pressures of 24 or 30 volts. The Safetylyte equipment to be shown consists of a control cubicle and battery of 14 sealed-in Planté type cells typical of many hundreds supplied to premises where sudden darkness could cause confusion or danger. Among the batteries will be the Tudor traction type, incorporating shock-proof separation of felted glass wool, perforated ebonite sheet and specially treated ribbed wood, specially designed to withstand the stresses involved in propelling industrial trucks, locomotives and electric road vehicles.

Permanent Way Films in the Scottish Region.—A mobile cinema coach began a three-month tour of centres in the Scottish Region on April 21. Films on permanent way subjects will be shown in each of the civil engineering districts in Scotland. Among the places included in the itinerary are Stranraer, Dumfries, Kilmarnock, Motherwell, Coatbridge, Bathgate, Falkirk, Stirling, Oban, Fort William, Perth, Inverness, Dingwall, Tain, Brora, Aberdeen, Dundee, Dunfermline, Hawick, and Edinburgh.

Scottish Region Quiz Competition for Locomotive Men.—A team representing Ayr defeated by 59 points to 56 a team from Dundee in the final of the first British Railways (Scottish Region) Quiz Competition for engine drivers, firemen and cleaners, held in Glasgow on April 8. Teams of six men each were entered in the competition by Mutual Improvement Classes in each of the Motive Power districts in Scotland. The winning teams in each district afterwards competed on a regional basis and the winner of the Scottish final, Ayr M.I.C., will now take part in the inter-regional finals being held in London during this month.

Electric Locomotives for Spanish National Railways

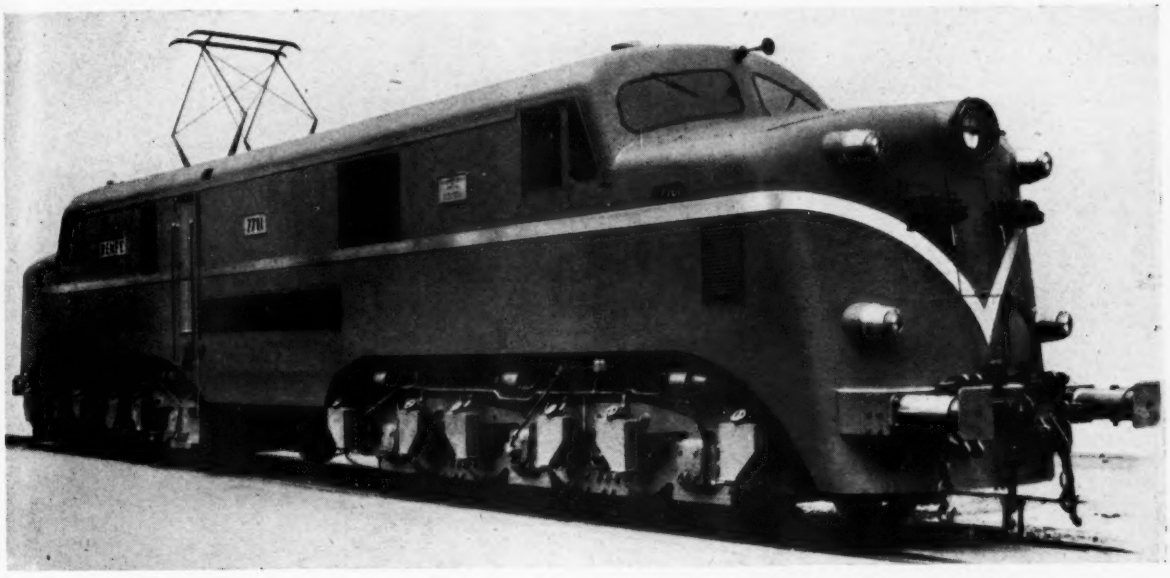
Sixty units for mixed traffic duties under construction by the English Electric Co. Ltd. and the Vulcan Foundry Limited

RAILWAY electrification is an important item in the programme of industrial expansion now under way in Spain. Extensions to existing main-line electrified sections will be made at 3,000 V. d.c., so that conversions of lines at present operating at 1,500 V. are involved as well as entirely new work. Consulting engineers of the Spanish National Railways visited Great Britain while a series of 3,000 V. d.c. locomotives for the former San Paulo Railway in Brazil was being built by the English Electric Co. Ltd. and the Vulcan Foundry Limited. In general this design complied with Spanish requirements, and an outcome of the consulting engineers' visit was the signing in Madrid on March 30, 1950, of a contract between the Spanish National Railways and the English Electric Export & Trading Co. Ltd. (an English Electric subsidiary) for the supply of 20 complete 3,600 h.p., 3,000 V. d.c. locomotives and a number of partial equipments. In November, 1951, this contract was increased to make a total of 60 complete electric locomotives, eliminating the partial equipments.

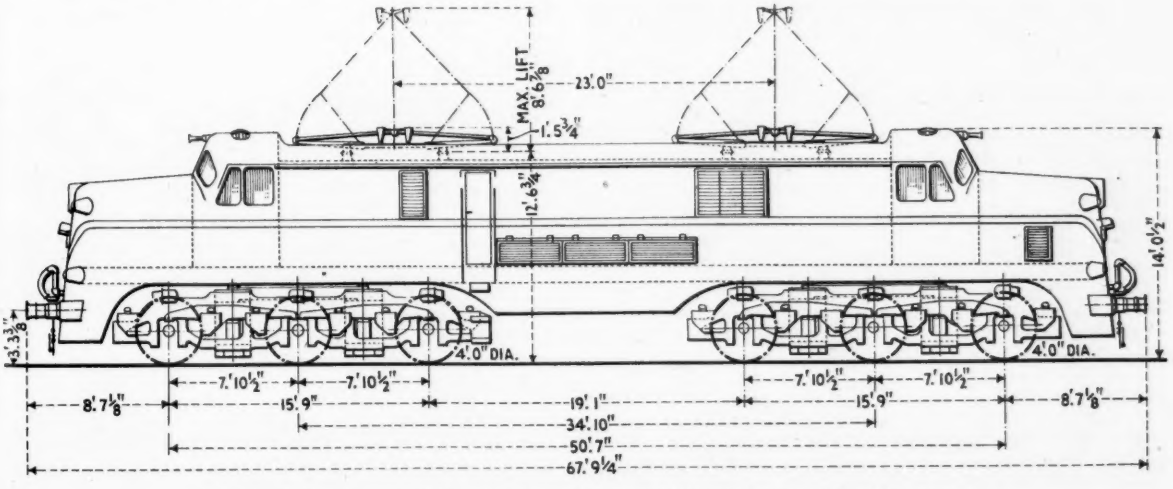
The mechanical parts of 20 of these locomotives are being built at the Preston Works of the English Electric Co. Ltd., and of 40 at the Vulcan Foundry Limited, Newton-le-Willows. On April 29, as recorded last week, there was an official inspection of the first of the series at the Vulcan Foundry. The locomotives are for the 5-ft. 6-in. gauge and have the Co-Co wheel arrangement. Principal dimensions are shown on the accompanying drawing. The weight in running order is 118 tons, and the maximum width 10 ft. 1in. The locomotive ratings are as follow:—

1-hr. rating	3,600 h.p.
Continuous rating	3,000 h.p.
Max. T.E. at starting (at 25 per cent. adhesion)	67,000 lb.
T.E. (continuous)	30,500 lb. at 36 m.p.h.
T.E. (1-hr.)...	39,000 lb. at 34 m.p.h.

Each of the six traction motors is rated at 600 h.p., 320A., for one hour and 500



The first of sixty 3,600-h.p., 3,000 V. d.c., electric locomotives for the Spanish National Railways



Principal dimensions of the new locomotives, which are for the 5-ft. 6-in. gauge

h.p., 270A., continuously at 1,500 volts. Regenerative braking is effected by separate excitation of the traction motor fields from one of the two motor-generator-blower sets in the locomotive.

The locomotive superstructure is streamlined with a cab at each end, mounted at the rear of each nose-end compartment. A central entrance vestibule extends right across the locomotive, and from it two passages, one on each side of the body, extend to the cabs. The motor-generator, contactor, and resistance compartments are accessible from the passages through doors unlocked by the reverser key, and released by moving fouling bars that open an air valve to lower the pantograph. Each nose-end compartment houses a motor-compressor to supply air for the loco-

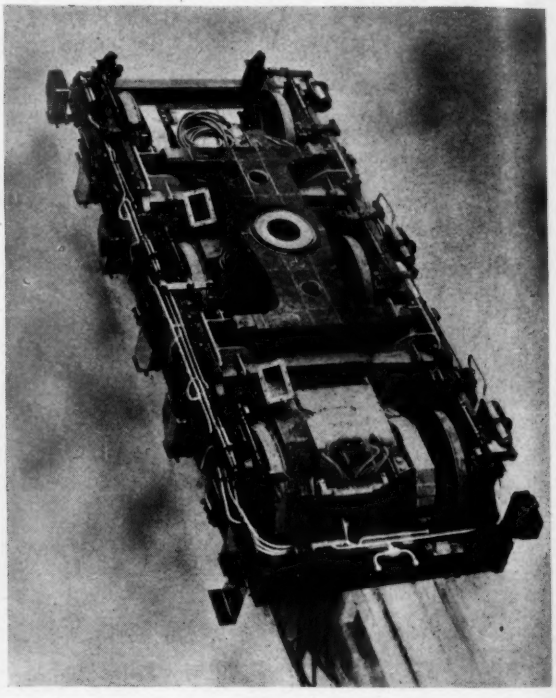
For operation of the roof isolators and to allow access to the roof, a folding ladder is mounted adjacent to one of the entrance doors. Immediately the ladder is removed, a valve in the air circuit of the pantographs is opened, causing them to be lowered.

The bogies are of the six-wheel bar frame type, and braced by cross stretchers of welded construction. Cross stretchers and end members are secured to the frames by turned and driven bolts. The weight of the locomotive superstructure is transferred to each bogie through a bolster of fabricated construction which carries the bogie centre and rests on four nests of laminated springs arranged transversely to the centre line of the locomotive. These springs are supported on spring planks slung by links

in accordance with the railway administration's standard practice. The axle journals are outside the wheels. Timken roller bearing axleboxes are fitted with manganese guide face liners bearing against manganese steel liners fitted to the axlebox guides. Air-operated sanding gear is provided on all wheels for both directions of running.

Vacuum-controlled air brake equipment supplied by the Westinghouse Brake & Signal Co. Ltd., is fitted on the locomotive, which is equipped for hauling vacuum-braked trains. The service braking is controlled from the driver's vacuum-brake valve, which operates the vacuum brakes on the train and, through a proportional valve, the air brakes on the locomotive. The Westinghouse air brake on the locomotive also can be con-

Driving position, with pedestal type master controller on left of driver's adjustable seat, and brake controls on right



Bar frame type motor bogie and axle-hung motors driving through resilient gearwheels

motive control and braking equipment, and a motor-exhauster for the vacuum brakes on the train. Two removable roof sections enable the main equipment to be lifted out.

Mechanical Construction

The body underframe consists of four rolled steel channels of deep section, well braced with cross members. On the ends of the underframe is mounted buffing and drawgear to the railway administration's requirements.

The superstructure consists of channel members welded together, the whole forming a body frame of girder construction. This framework is attached by welding to the locomotive underframe and is panelled in steel sheet, the joints of which are continuously welded.

from the bogie frame. Four pairs of coil springs carry the bogie frame on the equaliser beams, the frame being so arranged that the static loads on the axles are equalised. The spring of the bolster is limited by stops.

The whole design of the bogie provides robustness with good riding qualities to enable the locomotives to operate over severe curvature. On main lines the minimum radius will be 250 m., but curves of 160 m. radius can be negotiated. In order to minimise flange wear, the centre axle of each bogie has $\frac{1}{4}$ in. side play ($\frac{1}{8}$-in. per axlebox), while the side play of the outer axles is $\frac{5}{16}$-in. ($\frac{5}{32}$-in. per axlebox).

SCOA-P cast steel wheel centres are pressed on to the axles; the tyres are shrunk on to the wheel centres, and fixed

trolled by means of a self-lapping driver's brake valve. For rapid release of the train brakes, the exhauster motor can be run above its normal speed by operation of a trigger on the control handle.

Brake blocks are applied to both sides of each wheel through brake rigging giving a brake power of 85 per cent. of the adhesive weight. Hand brakes are fitted, operated from a handwheel in each cab acting on the adjacent bogie.

Electrical Equipment

The six force-ventilated traction motors are axle-hung and nose-suspended, and drive through single-reduction spur-gearing with resilient gearwheels made at the Bradford works of the English Electric Co. Ltd. Torsional

resilience is provided by Silentbloc bushes. A welded sheet-steel split gear-case is supported from the motor frame. Sleeve suspension bearings and roller armature bearings are fitted to the motors. The armature coils are former-wound and Bakelised. Field coils are machine-wound, vacuum-impregnated in synthetic high-temperature varnish, and baked.

The control scheme provides nine economical running speeds, there being three motor combinations each with one full-field and two weak-field notches. Power contactors, grouping switches and reversers are electro-pneumatic, but auxiliary circuit contactors are electro-magnetic. A handwheel type master controller combines notching up and transitions when motoring; separate handles select the weak-field notches and, during regenerative braking, the two permissible motor groupings. Another control regulates the braking effort during regeneration by adjustment of the excitation current.

Two 20-kW. motor-generator-blower sets with 3,000 V. motors, are installed. Both machines operate continuously for traction motor cooling, but the output from one generator is used only for separate excitation of the traction motor fields during regenerative braking. The generator output is at 110 V., and a lead-acid battery on floating charge provides for emergency operation of the control circuits, 110 V. auxiliaries such as the compressors and exhausters, and regeneration.

The driving cabs have two wide front windows with one fixed and one drop window at each side. Trico windscreen wipers are fitted to the front windows. The driving position is on the right-hand side of the cab, with pedestal type master controller on the driver's left and air and vacuum brake controls on his right. The upholstered driving seats are of the Leveroll type with vertical and horizontal adjustment.

An instrument panel in front of the driver mounts four electrical meters and the vacuum and air pressure gauges. The meters show line volts, traction motor excitation current during regeneration, regenerated current, and motoring current. A Hasler Teloc recording speedometer is mounted separately on the right of the cab. Sanding is foot-operated by a pedal below the normal footrest. On the left-hand side of the cab a foot-pump is fitted for providing an initial air pressure sufficient to operate the pantographs and control apparatus before the supply is taken over by the motor-driven compressors. The electric headlamps were supplied by J. Stone & Co. Ltd.

Cab Signal Lamps

A row of signal lamps is located below the instrument panel. One of these provides for signalling to a second locomotive working in multiple-unit. Up to three locomotives can be worked in this way, but at present it is not intended to couple more than two. Another lamp is illuminated in case of a blower failure, and a light signal shows continuously when operating on any of the resistance notches. The fourth signal lamp lights up if the line contactors open on overload current.

The locomotives are designed internally to make maintenance as easy as possible. Direct access is provided from the cabs to the rear of certain L.T. contactors. All piping and conduit is colour-coded to assist the tracing of circuits. Current is collected by two double-pan pantographs, which are air operated and spring-controlled.

Sphere of Operation

The principal electrified zones in Spain are at present between Ujo—Busdongo, and Torre—Brañuelas on the Leon—Ponferrada, and Leon—Oviedo sections in the north; the Madrid section in the centre of Spain; and the Barcelona section in the north-east. The first of the sixty main line locomotives are to operate on the northern section of the system, which was originally the Norte Railway. They will work initially between Ujo and Busdongo (38 route-miles) on the Leon—Oviedo line. At present the Torre-Brañuelas section adjacent to Ponferrada is operating at 1,500 volts d.c. but it is intended to change this to 3,000 volts d.c. and to extend the electrification from this section.

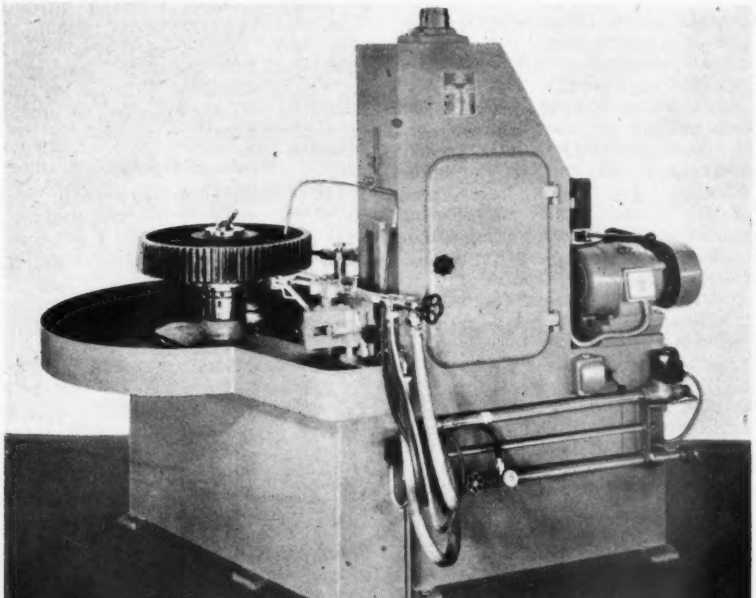
These new 3,600 h.p. electric locomotives will be, at the time of their initial delivery, the most powerful electric locomotives yet manufactured in Great Britain.

Gas Turbine Locomotive Trials on the Union Pacific

The General Electric 4,500-h.p. gas turbine locomotive with electrical transmission making a trial run on the Union Pacific Railroad. During its tests the locomotive covered over 100,000 miles, and the railway has ten similar units on order

Temperature Measurement in Flame-Hardening

Photocell device compares radiation from a comparison filament and from the work surface



Surface hardening a machine cut gear using the Peddinghaus Milliscope

INCREASING use is being made of flame-hardening as a means of producing local hardness in components subject to wear. In the surface-hardening of carbon steel the component is rapidly heated to the desired temperature and quenched before the heat has penetrated below the required depth of hardening. If the specified temperature is not reached the surface will not be to the correct hardness figure or correct depth. Equally unsatisfactory results are obtained should the temperature be exceeded.

With a view to controlling the temperature input, an automatic temperature measuring instrument, known as the Peddinghaus Milliscope, enables temperature rises greatly in excess of the heating speed to be measured within fine limits. By linking the instrument to a Peddinghaus flame-hardening machine, precise and continuous automatic control of the hardening temperature is obtained and long runs of components can be accurately and consistently treated. The instrument, if not coupled to the flame-hardening machine is of assistance to an operator as it provides a means of warning of the approach of critical temperature.

Diagram of the Milliscope control system

Principle of Operation

The instrument comprises two main parts: the working head, fitted with a water cooling device, necessary when working with large heat radiating surfaces; and the control panel, and is similar in principle to the disappearing filament optical pyrometer, except that a photocell is used to compare the radiation from a comparison filament and from the work surface.

The temperature of the filament is set by a rheostat and an image of it is focused on the photocell, the optical path being interrupted by a rotating modulator disc. The disc has circular holes and is so arranged that it alternately exposes the photocell to an image of the work surface and to the comparison filament. The radiation from these two sources is continuously compared and, by the introduction of optical light filters, the comparison is made in a particular wavelength range. If a difference exists, an alternating current is produced by the photocell, the phase of which is indicative of the direction of unbalance.

The radiation from the comparison filament can be adjusted by variation of the current passing through it. Since the radiation from the work surface is related to its temperature, it will be seen that, for a particular setting of the comparison filament current, there will

(*Continued on page* 521)

Flame hardening locomotive components on a Peddinghaus machine type 250. *Left, locomotive expansion link ; right, crosshead slide bar*

British Railways Standard Wagons

10-*ton medium goods wagon and* 13-*ton low goods wagon*

British Railways standard 13-*ton medium goods wagon*

TWO further types of British Railways standard wagons recently produced are the 13-ton medium goods wagon and the 13-ton low goods wagon, which have been designed at Derby to the requirements of Mr. R. A. Riddles, Member of the Railway Executive for Mechanical & Electrical Engineering, and are being built at Ashford and Shildon respectively.

Particulars of Wagons

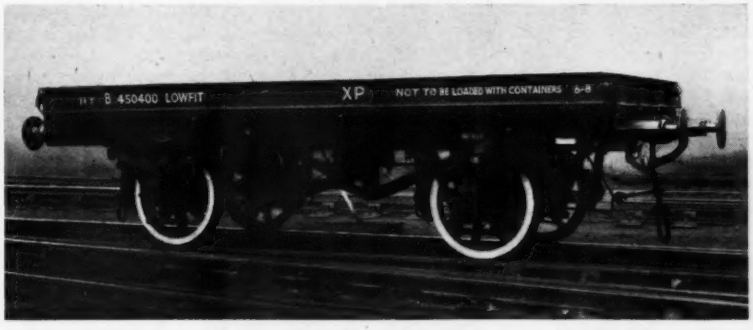
The 13-ton medium goods wagon is 17 ft. 6 in. long over the headstocks with a 10 ft. wheelbase; the tare weight is 7 tons 1 cwt. and the load 13 tons. It is mainly of riveted construction, the underframe and body members being of B.S. rolled-steel sections. The body is of all-metal construction with the exception of the floor which is of timber. The ends are fixed and the sides comprise one-piece hinged doors which are fitted with spring door controllers. The interior dimensions of the wagon are 17 ft. 4⅞ in. × 7 ft. 9¼ in. × 1 ft. 9 in. deep.

The 13-ton low goods wagon is also 17 ft. 6 in. long over the headstocks with a 10 ft. wheelbase, the tare weight being 6 tons 9 cwt., and the load 13 tons. The underframe is of all-welded construction and the body is of metal with the exception of the timber floor. The sides and ends are fitted with one-piece hinged doors made up of 9 ft. × 3 in. channel. The sides when lowered on to a loading deck present a practically flush floor, while the ends when dropped, form loading ramps over the buffers. The interior dimensions are 17 ft. 5½ in. × 8 ft. 2⅛ in. × 9¼ in. deep.

Buffing and Drawgear

The buffing and drawgear of both vehicles are similar. The spindle type buffers with 1 ft. 6 in. projection are fitted with rubber or steel coil springs behind the headstocks, and the short drawgear is used in conjunction with either all-rubber or rubber and steel springs.

Instanter couplings are fitted, allowing either long or short connections. The wagons are fitted with vacuum brakes for fast freight working, and hand brakes which can be worked from either side of the wagon. Clasp brakes are used with eight blocks on each wagon. The wheels are 3 ft. 1½ in. dia. and have 9 in. × 4½ in. journals; standard laminated bearing springs are fitted, which in the case of the 13-ton medium wagon are 4 ft. 6in. long and have indiarubber auxiliary springs, whereas the 13-ton low wagon has 3 ft. 6 in. long springs with the normal type of spring shoe.



British Railways standard low-side 13-*ton capacity wagon*

Temperature Measurement in Flame-Hardening

(*Concluded from page* 520)

be a work-surface temperature at which no alternating current is produced by the photocell. At this point the direct current generated is utilised to actuate switches on flame-hardening machines, rendering them automatic in action, and to control hardening temperature.

The photocell current is amplified and applied to a phase sensitive rectifier arranged to operate a relay so that, when the work temperature reaches the value set, the relay is operated. This controls, in some cases of progressive hardening, the speed of the burner and quench; in others, it changes the position of the component from the heating to the quench position.

By means of a signal lamp and moving needle, the Milliscope indicates precise conditions during the operation. At the commencement of heating a green signal lamp is illuminated and, as the temperature approaches that at which the instrument has been set, the needle on the control panel passes through a large scale as a warning that the required temperature will soon be reached. At approximately 10° C. before such temperature is attained, the green signal disappears. When the temperature of the work equals that of the filament, the needle reaches zero and at 10° C. above this temperature a red signal is shown, the needle continuing beyond zero to indicate the deviation.

As the accuracy depends upon the stability of the comparison filament lamp, the lamp is arranged to run at $\frac{1}{10}$ of its nominal output, except when sighting the filament on the component to be heated. Then more current is permitted to pass to the filament to make its image visible on the spot from which the temperature will be measured. The distance between the flame-hardening machine and the working head of the Milliscope is usually between 12 in. and 30 in. depending on the surface area to be measured. For example, at 27 in. an area $\frac{1}{8}$ in. dia. is covered; with another set of lenses, it is possible to measure an area $\frac{1}{64}$ in. dia. at a distance of 4½ in.

Milliscopes can be used to control and maintain temperatures down to 200° C. with accuracy. The equipment is distributed in the British Isles and British Dominions by Surfard Limited.

Wind Velocity Records at Dawlish Warren

Apparatus constructed by the Western Region to assist study of wind erosion effects on sand dunes

Pylon at Dawlish Warren supporting anemometer head for transmitting wind velocity changes to electrical recording apparatus in the adjacent hut

AN anemometer constructed by the Soil Mechanics Laboratory of the Western Region, British Railways, has been installed at Dawlish Warren, near Exeter, to obtain a record of the velocity (speed and direction) of the wind. This information is used for the study of the effects of wind erosion on the sand dunes which protect the railway from the sea at that point. The instrument, which operates for a month without attention, records data which, in conjunction with wind tunnel tests in the laboratory, indicate the nature of the remedial measures to be taken on the site.

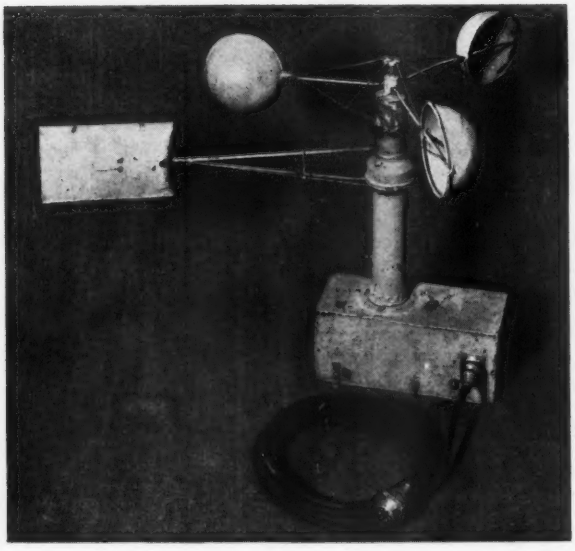
A special feature is that the connection between the "head" of the instrument, responding to the wind movement, and the recording mechanism, is electrical, enabling the head to be independently positioned on a pylon, 35 ft. high, and linked by a seven-way cable to the recorder in an adjacent weatherproof hut.

Wind speed is measured by the conventional arrangement of three hemispherical cups, mounted at 120 deg. on a shaft which is geared to a cam. The closing of electrical contacts actuates a pen on a paper roll, the frequency of the marks indicating the speed by reference to a time base.

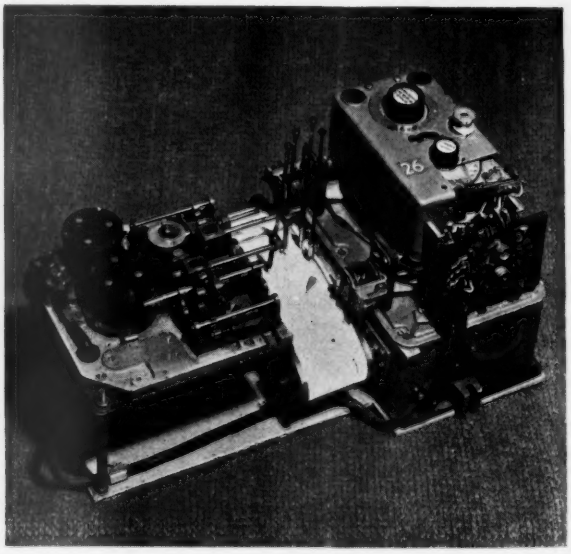
The wind direction vane is attached to a shaft concentric with the wind speed shaft, and geared to a triple cam, the three portions of which are set at 120 deg. This cam actuates three sets of contacts, only one set of which is open at any moment, the others passing a current to a pair of repeater motors in parallel; their circular motion is translated to a reciprocal movement of two pen-arms. The two pens are set 90 deg. out of phase, enabling the differentiation between direction of veer of the wind to be obtained.

A time base pen, also electrically operated, provides calibration marks at 1-hr. intervals along the wind speed trace. The 24-volt electrical supply is taken from four heavy-duty 6-volt batteries in series, which are charged weekly. To ensure continuity of records, new batteries are plugged in before disconnecting the old, *via* a simple panel.

In interpreting the records, wind speed is found by comparison with the time base, the instrument having previously been calibrated against a portable non-recording anemometer to produce a graph giving direct reading of the average velocity. Wind direction is obtained by laying a prepared mask over the pen trace. The direction can be measured to 5 deg.



Anemometer recording head with cups for measuring wind speed and vane for detecting changes of direction



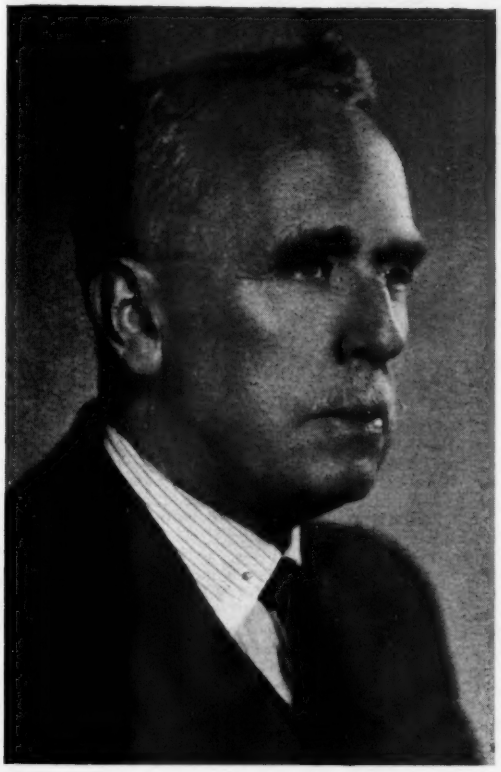
Recording apparatus, showing in centre the four pens which produce the traces on the moving paper roll

RAILWAY NEWS SECTION

PERSONAL

Lt.-General Sir Clarence Bird, Chairman, Railway Board, Rhodesia, and Sir Arthur Griffin, General Manager, Rhodesia Railways, are due to retire within the next 12 months.

We regret to record the death in Buenos Aires, on April 28, of Mr. Mervyn F. Ryan, C.B.E., M.I.C.E., M.I.E.E., M.I.Loco.E., M.Inst.T., General Manager, Buenos Ayres & Pacific Railway, Argentina, 1928-47, and subsequently Managing Director of that company. He was educated at Stonyhurst College and University College, Nottingham, where he obtained his civil engineering degree. He joined the service of the Midland Railway, and after a period in the locomotive works, proceeded to the United States, where he was engaged in the Motive Power Department of the Pennsylvania Railroad and in the testing department of the General Electric Company at Schenectady. Two years after his return to England, he was promoted Assistant to the Works Manager, Derby; and from 1911 to 1913 was Locomotive, Carriage & Wagon Superintendent of the Somerset & Dorset Joint Line. In 1913 he joined the London & South Western Railway as Assistant Locomotive Superintendent at Eastleigh Works. During the first world war, Mr. Ryan's services were requisitioned by the Government, and he was appointed to assist Sir Henry Fowler in the organisation of the Gauge Department of the Ministry of Munitions, later becoming Director of Munition Gauges. For his services to the Ministry of Munitions, the Order of Commander of the British Empire was conferred on him. Returning to the London & South Western Railway, Mr. Ryan became Deputy Chief Mechanical Engineer, a position which he resigned in 1919, to become Chief Mechanical Engineer of the Central Argentine Railway at Rosario. Six years later, he joined the Buenos Ayres & Pacific Railway as Assistant General Manager, and succeeded the late Sir Arthur Watson as General Manager in March, 1928. In 1945 he was elected a Director of the company and appointed Managing Director; in 1947 he relinquished his position as General Manager, but continued for a time as a Director and a member of the Local Board. Mr. Ryan was a Past President of the Institution of Locomotive Engineers.



The late Mr. Mervyn F. Ryan

General Manager, Buenos Ayres & Pacific Railway, Argentina, 1928-47

The late Sir Alan Anderson

Controller of Railways, Ministry of War Transport, and Chairman, Railway Executive Committee, 1941-45

Mr. J. S. Maclay, Minister of Transport & Civil Aviation, who went on sick leave on April 24, has resigned his offices. A successor to Mr. Maclay had not been appointed at the time of going to press.

Mr. R. J. Hillard, who, as recorded in our April 25 issue, is retiring as General Manager of the Sudan Railways, anticipates being in London for a week during June.

We regret to record the death on May 4, at the age of 75, of Sir Alan Garrett Anderson, G.B.E., Controller of Railways, Ministry of War Transport, and Chairman of the Railway Executive Committee, 1941-45. He was educated at Eton, a King's Scholar, and afterwards at Trinity College, Oxford. After leaving Oxford in 1897, he entered the office of Anderson, Anderson & Co. (now Anderson, Green & Co. Ltd.), Managers of the Orient Line, of which he became a partner in 1900. He afterwards became also a Director and Deputy-Governor of the Bank of England. In 1916-17 he was Vice-Chairman of the Royal Commission on Wheat Supplies. During the war of 1914-18, he was Chairman of the Wheat Executive, which bought and regulated the supply of wheat and grain to Great Britain, France, and Italy. In 1917-18, he was Controller in the Admiralty, and later was Vice-Chairman of the Food Council. He was created a K.B.E. in 1917, and G.B.E. in the Birthday Honours List of 1934. Sir Alan Anderson was President of the Chamber of Shipping of the United Kingdom in 1924-25; President of the Institute of Marine Engineers in 1928; President of the Association of Chambers of Commerce in 1933-34; and Chairman of the Cereals Control Board in 1939. He had been a Director of the Suez Canal Company, Peninsular & Oriental Steam Navigation Company, British India Steam Navigation Co. Ltd., and Anderson, Green

Mr. C. J. H. Selfe

Appointed Assistant Commercial Superintendent Scottish Region

Elliott] [& Fry

The late Mr. J. H. Millen

Chief Electrical Engineer, L.P.T.B., 1934-38

Mr. Frank Marsden

Appointed Shipping Traffic Superintendent, Belfast, British Railways, L.M. Region

& Co. Ltd. (until 1935 he was also Chairman). He became a Director of the London Midland & Scottish Railway Company in 1923, and previously had been a Director of the Midland Railway, but resigned from the board of the L.M.S.R. when, in 1941, he was appointed Chairman of the Railway Executive Committee and Controller of Railways in the Ministry of War Transport. Sir Alan Anderson rejoined the board of the London Midland & Scottish Railway Company in 1945 and continued to hold this Directorship until nationalisation. The funeral, which was held at Golders Green Crematorium on May 7, was private.

Mr. Selby T. Robson has resigned from the boards of Head, Wrightson & Co. Ltd., and of Head Wrightson Processes Limited.

Mr. C. J. H. Selfe, District Commercial Superintendent, Dundee, Scottish Region, who, as recorded in our March 21 issue, has been appointed Assistant Commercial Superintendent, Scottish Region, joined the North Eastern Railway in 1920, and obtained experience in the Commercial Department under the District Goods Manager, Newcastle, until 1929, when he became a traffic apprentice. After holding an appointment in the Superintendent's Office, Southern Area, L.N.E.R., London, Mr. Selfe was appointed, in 1933, Commercial Assistant to the Docks Superintendent, St. Andrew's Dock, Hull. In 1935 he succeeded the Operating Superintendent at St. Andrew's Dock, and two years later became Dock Agent, Albert & Wm. Wright Docks, Hull. In 1938 he was transferred to the District Superintendent's Office, Hull, and in 1939 he was appointed Goods Agent, Edinburgh (Waverley). Mr. Selfe subsequently received appointments as Assistant District Superintendent, Burntisland (1940); Assistant District Superintendent, Edinburgh (1941); Trains Assistant to Superintendent & Locomotive Running Superintendent (Scottish Area), L.N.E.R. (1942); Principal Assistant (Operating), Central Traffic Office, Marylebone (July, 1945); and District Traffic Superintendent, Aberdeen (November, 1945). Mr. Selfe was appointed District Commercial Superintendent, Dundee, in 1949.

We regret to record the death on April 30 of Mr. J. H. Millen, M.I.E.E., who was Chief Electrical Engineer, L.P.T.B., between 1934-38. He served his apprenticeship with Latimer Clark, Muirhead & Co. Ltd. and worked for two years with Paterson & Cooper Limited, after which he joined the Dublin tramways. In 1903 he was appointed Chief Assistant during the building of Lots Road power house and in 1916 became Assistant Superintendent of Power. In 1926 he was appointed Superintendent of Power to the Underground Group, becoming Electrical Engineer in 1930. In January, 1934, he was appointed Chief Electrical Engineer, L.P.T.B., and continued in this capacity until he retired from London Transport service in 1938. During the recent war Mr. Millen was with the Ministry of Labour & National Service. In 1945 he joined the Control Commission for Germany, but in the following year became Regional Controller, London Region, Ministry of Fuel & Power, a position he held until December, 1948.

Mr. G. B. Gray, General Agent for Eire, British Railways (London Midland and Western Regions) has been co-opted a Member of the Council of the Safety First Association in Ireland.

Transportation Club Dinner

The next monthly dinner of the Transportation Club has been arranged for Thursday, May 22, at 6.45 for 7.30 p.m. Mr. Archibald Campbell, Chief Mechanical Engineer, Office of the Crown Agents for the Colonies, will be the principal guest.

Sir Harry Railing, Chairman & Joint Managing Director of the General Electric Co. Ltd., has been elected President of the British Electrical & Allied Manufacturers' Association. Mr. T. F. Lister, Chairman & Managing Director of the Hackbridge & Hewittic Electric Co. Ltd., has been re-elected Chairman of the B.E.A.M.A. Council for the session 1952-53, and Mr. D. D. Walker, Joint Managing Director of Evershed & Vignoles Limited, has been elected Vice-Chairman of the Council for the same period. Mr. James Oldroyd has been appointed Secretary of B.E.A.M.A.

Mr. Frank Marsden, Assistant District Commercial Superintendent, Barrow, London Midland Region, who, as recorded in our April 25 issue, has been appointed Shipping Traffic Superintendent, Belfast, British Railways, London Midland Region, entered the service of the North Staffordshire Railway at Stoke-on-Trent in 1917. After experience in commercial and operating work, including six years on headquarters relief staff in the Stoke, Leeds and Manchester district, he was transferred to the Divisional Superintendent's Office, Crewe, as H.Q. Inspector in 1934. From then until 1938 Mr. Marsden served on several special committees, including "Shunting & Traffic Analysis" and "Increased Line Capacity." In 1938 he was transferred to the Modernisation Section at L.M.S.R. headquarters, Euston. Shortly after the outbreak of war in 1939, he was appointed Railway Liaison Officer to the London Coal Control and in 1941 the L.M.S.R. Distributor at the Inter-Company Freight Rolling Stock Control. Mr. Marsden was transferred to Barrow-in-Furness as Assistant Docks Manager in 1943 and in 1946 was promoted to Assistant District Commercial Superintendent, Barrow-in-Furness.

Mr. F. E. Longhorn, Senior Staff Clerk, Operating Superintendent's Office, Eastern & North Eastern Regions, Marylebone, has been appointed Assistant to Operating Superintendent (Staff & General), Eastern & North Eastern Regions, Marylebone, in succession to Mr. T. R. Harrison.

Mr. P. Spilsbury, M.B.E., Passenger & Freight Agent, Bristol, Canadian Pacific Railway, who, as recorded in our April 4 issue, has been appointed General Agent, Bristol, joined the C.P.R. Passenger Department in London in 1928. Before the war he went on seven round-the-world cruises in the *Empress of Australia* and *Empress of Britain* as assistant cruise director and was also cruise director on Mediterranean voyages. In February, 1940, he joined the Royal Engineers, as a Movement Control Officer. He was in the expedition to Norway and later went to the Middle East. He rose to the rank of Lt.-Colonel and was awarded

the M.B.E. Mr. Spilsbury returned to the C.P.R. in 1947 and was appointed Freight Travelling Agent, attached to the London City office. In 1950 he became Passenger & Freight Agent, Bristol.

Those recently elected as Members of the Institution of Mechanical Engineers include Mr. F. B. Illston, Assistant Carriage & Wagon Engineer, Southern Region, British Railways.

Commander Sir Robert Micklem, R.N., has relinquished his offices of Joint Managing Director of Vickers Limited, Chairman of Vickers-Armstrongs Limited, and his directorships of other companies in the Vickers group.

Mr. Charles Hervey has succeeded Mr. E. T. Sara as Public Relations Officer of the United Steel Companies Limited.

The Southern Region of British Railways has announced the appointment of Mr. G. A. Weeden, Assistant District Motive Power Superintendent, Stratford, Eastern Region, as Assistant Motive Power Superintendent (Mechanical), Waterloo, Southern Region, with effect from May 26.

We regret to record the death on May 4, at the age of 44, of Mr. W. F. R. Mitchell, who joined the London Office of the United Steel Companies Limited in 1925 and served as an Assistant in the Railways Department of that Office.

Mr. F. E. Birch, A.M.Inst.T., A.M.I.R.S.E., who, as recorded in our April 18 issue, has been appointed Divisional Superintendent "D," responsible for the Central Line, London Transport Executive, with the rank of Principal Executive Assistant, joined the Underground Group in 1914 as a junior clerk, entering the Railway Operating Department in 1927. He was promoted Assistant to Divisional Traffic Superintendent in 1932 and District Traffic Superintendent in 1938. In 1948 he was appointed Training Assistant, being responsible to the General Superintendent (Staff & Training) Railways, for the direction of all training activities within the department. During the 1914-18 war Mr. Birch served with the Royal Sussex Regiment.

We regret to record the death of Mr. M. A. Remfry, General Superintendent (later Chief Traffic Manager), Victorian Government Railways, 1934-50. He joined the railway as a junior clerk in the Accounts Branch in 1901, transferred to the Way & Works Branch four years later, and subsequently gained a degree as Bachelor of Civil Engineering. He was appointed District Engineer, Oakleigh, in 1921, and later transferred to the then Transportation Branch as Relieving District Superintendent. In 1929 he was appointed District Superintendent, Seymour, and three years later, Metropolitan Superintendent. In 1934 he was appointed General Superintendent, and when the name of the branch was changed in 1950 he became the first Chief Traffic Manager. When he retired in June, 1950, he was given a special assignment to investigate accommodation at Melbourne Yard, and to plan for increased facilities to cope with the development and electrification of the Gippsland line. Subsequently Mr. Remfry visited the United Kingdom, the European Continent, America and Canada to inspect marshalling yard facilities. He returned to Victoria in 1951.

British Railways Summer Services

Accelerations and introduction of new regular-interval departures

Summer services on British Railways are to operate from June 30 to September 14; there will be many additional trains both before and after this period, especially at weekends, for early and late holiday makers. The services will be based in general on last summer's arrangements, but 60 long-distance expresses will be accelerated by from 10 to 60 min., and more reserved seats will be available.

Accelerated trains will include the "Cornish Riviera Express," the "Mid-day Scot," the "Capitals Limited" and the "Atlantic Coast Express" (which will cover the 83¾ miles from Waterloo to Salisbury in 83 minutes); as well as services on the Liverpool-Bradford, Newcastle-Torquay, Plymouth-Brighton, Penzance-Wolverhampton, and other cross-country routes. The "Golden Arrow" between London and Calais will be accelerated by 5 min. to give a time of 3 hr. 15 min. between these points. Trains from Bradford and Leeds to Liverpool, in addition to being accelerated, will be arranged to leave at regular intervals of 55 and 15 min. past the hour respectively.

New Weekend Services

Re-arrangement of schedules will enable entirely new week-end services to be introduced between London and Glasgow, the Cumberland Coast, the Eastern Counties, the West of England, and South Wales, as well as on cross-country routes such as Leeds-Morecambe, Liverpool-Bournemouth, Manchester-Newquay, and Preston-Cardiff. The Saturday service between Waterloo and Portsmouth Harbour for the Isle of Wight will be increased from three to four electric express trains an hour in each direction—the highest frequency on record for any regular main line service.

Reserved seats will be available on 5,530 services each week—about 200 more than last year. For the convenience of suburban residents of London and other large cities, main-line trains will make about 3,600 stops each week (600 more than last year) at suburban stations and so avoid the necessity of travel to town to start long journeys.

Although British Railways are making every effort to accelerate passenger services within present limitations, general restoration of pre-war speeds is not yet possible. The overall passenger train-mileage is restricted in order to save coal for the winter, which means that many trains have to convey heavier loads, and make more stops, than would be needed if more trains could be run.

Factors Retarding Progress

While there has been some improvement lately in the recruitment of permanent way staff, the continued shortage is still serious and this, coupled with reduced supplies of steel, prevents the full renewal programme being carried out. At present there are about 200 temporary speed restrictions in force on British Railways, due to track being renewed or awaiting renewal, and including some 70 restrictions due to colliery subsidences; the total number of restrictions is about 40 fewer than a year ago.

LUNCHEON AT THE VULCAN FOUNDRY.—Inspection of the new electric locomotives for Spain described on another page this week was preceded by a luncheon at the Vulcan Foundry (see our May 2 issue). The inspection was attended by representatives of the Spanish Government and Spanish National Railways, other overseas railways, the Railway Executive, consulting engineers, and the technical press. Afterwards, the first of the 60 locomotives was seen running under its own power, supplied from a mobile substation. In the group below the following are seen from left to right:—

Mr. H. G. Nelson, Deputy Managing Director, the English Electric Co. Ltd.; Mr. Ruiz Morales, Commercial Counsellor, Spanish Embassy; Brigadier James Storar, Chairman, the Vulcan Foundry Limited; Sir George H. Nelson, Chairman & Managing Director, the English Electric Co. Ltd.; Mr. G. Collingwood, Managing Director, the Vulcan Foundry Limited; Sir John Lienhop, Agent-General for Victoria; Mr. C. M. Cock, General Manager, Traction Department, the English Electric Co. Ltd.; and Mr. R. A. Riddles, Member, the Railway Executive.

Sir George H. Nelson, Chairman & Managing Director of the English Electric Co. Ltd., speaking at the luncheon before the inspection of the new locomotives for Spain on April 29

Demonstration of New Mobile Crane

Inspection by representatives of the Railway and Road Haulage Executives of 2-3 ton Staffa crane

Representatives of the Railway and Road Haulage Executives attended a demonstration of the new Staffa 2-3-ton mobile crane at Hoe Street Goods Depot, Walthamstow, Eastern Region, on May 1. They included the following members of the Modernisation Sub-Committee (Goods) of the Railway Executive:—

Messrs. E. K. Whittingham (Chairman of the Sub-Committee); C. H. White (Secretary of the Sub-Committee); J. Winter, North Eastern Region; H. Kinsey, and S. H. Smith, Eastern Region; W. Dalglish, Scottish Region; F. J. Williams, London Midland Region; J. W. Collinge, Southern Region; and S. Holt, Railway Executive (Technical).

Also attending by invitation of the Sub-Committee were:—

Messrs. W. Lloyd, Operations Officer, Traffic (Haulage), and J. N. Swift, Technical Assistant to Chief Engineer, Road Haulage Executive.

Staffa mobile crane stowing goods in corner of standard van

The demonstration was staged at the request of the two Executives to determine the suitability of the crane for inclusion in their extensive mechanisation programmes.

The Staffa mobile crane, now in production by Chamberlain Industries Limited, Leyton, London, E.10, has been evolved as a result of the company's long experience in reconditioning British and American cranes. From the first experiments over two-and-a-half years ago, the first prototype crane was designed. It has been thoroughly tested for nearly a year, and improvements have been made.

The tests included loading into and unloading from vans, flat wagons and open wagons a variety of consignments, including a one-ton container; round timber weighing 1 ton 12 cwt. and 24 ft. long; packing cases; a casting weighing 1 ton 1 cwt.; and 3 tons of steel sections. Special attention was paid to manœuvrability. In tests conducted later at the company's works an overload lift of some 4½ tons was made with apparent strain.

When loading into the van the minimum clearance between the top of the jib, in its horizontal position, and the top of the door opening was 1¼ in. The distance between the hook of the crane when in this position and the van floor was 3 ft. 3 in. The distance between the rear of the crane and the rail, preparatory to moving forward with the jib horizontal into the van, was 19 ft. 6 in.

Simplified Maintenance

The crane, which is completely mechanical, has been specially constructed to reduce maintenance to a minimum and to ensure that where maintenance is inevitable, it will be of a simple mechanical nature. An outstanding feature is a robust hydraulic ram with finger-tip control for raising and lowering the jib. The hoisting mechanism comprises a fan-cooled worm reduction gear, on which is mounted the grooved drum conveying 65 ft. of ⅝ in. dia. construction wire rope made from 100/110 tons per sq. in. best plough steel. Power is transmitted by a propeller shaft and chain drive from a marine type forward and reverse box at the rear of the crane and coupled by a further propeller shaft to the engine. A robust hoist brake is connected directly to the forward and reverse box to give automatic engagement; and hoisting control is by a convenient lever beside the driver.

The crane is powered by a Newage-Austin industrial-type o.h.v. four-cyl. petrol engine of 1,200 c.c. capacity. Transmission is from a dry single-plate clutch and synchromesh gearbox, providing four speeds forward and one reverse. Mechanically-operated internal expanding 10½ × 3¾ brakes are fitted to the front driving wheels and may be actuated by pedal or hand lever.

The two steering wheels can be turned through 150 deg., providing a small turning circle, within the crane chassis length. The twin front wheels and rear steering wheels are fitted with six 27 in. × 6 in. pneumatic tyres. The chassis, of all-welded construction, is fitted with a front bumper plate to give maximum protection to tyres and wheels and also to push loads or vehicles if required.

The jib is of lattice design and largely of riveted construction with two deep groove rope sheaves, and is mounted on an all-welded support frame. Two side lights, a rear light, and a spot light illuminating the load at all angles of the jib, are fitted.

As the crane is constructed on the unit principle, if any major part requires replacement a complete sub-assembly can be supplied for mounting into the main chassis, jig-drilled locating holes being used throughout to ensure interchangeability. Another feature is the low centre of gravity.

G.N.R.(I.) Railcar Excursion to Cork

On the occasion of a recent football match at Cork, a through excursion, using A.E.C. diesel railcars, was run from Dundalk by the Great Northern Railway (Ireland). When it became known at Dundalk that the trip would be by diesel train, so many applications for tickets were received that a second train had to be provided. The first was a three-car set consisting of two A.E.C. diesel railcars with a buffet car between. Seating capacity was 135 and the weight of the train 107½ tons. The second set was made up to four cars by an extra vehicle in the centre, bringing the capacity up to 205 and the weight to 137½ tons. Of the total of 340 seats, 279 were occupied on the outward run and 293 on the return.

The trains had to be brought empty from Dublin to Dundalk; the first left at 6.50 a.m. and the second arrived back at 3 a.m. next day. The total distance involved by empty and loaded running was 557½ miles, and the average speed for the whole working, after allowing for standing time at involuntary stops but not for the effect of decelerating and accelerating, was 48½ m.p.h. by the three-car train and 46½ by the four-car train.

All runs between Dundalk and Dublin, where reversal was necessary, and between Dublin and Cork were booked non-stop in both directions except for taking up and setting down at Drogheda. Unfortunately the three-car train experienced six signal checks on the outward run and four on the return; the four-car train had one only on the outward trip.

No spectacular speeds were intended, and from 70 to 77 min. were allowed between Dublin and Dundalk, and 225 min. between Dublin and Cork. On the outward journey, in spite of eight stops, totalling 28 min., the three-car train was only 5 min. late into Cork, and on the return journey was 13 min. ahead at Dundalk. Eight checks were met with totalling 24 min., but 20 min. were saved by an early start from Dublin. The four-car train with one stop of 18 min. was 8 min. late at Cork and on the return trip an

early start of 5 min. cancelled out a previous signal check and the train arrived at Dundalk 2 min. ahead of time.

Fuel consumption per train for the whole working was 3·82 m.p.g. for the four-car train and 3·84 m.p.g. for the three-car, giving 525 ton m.p.g. and 413 ton m.p.g. respectively. It is thought that the better performance of the four-car train may be due to some extent to the fitting of free wheels on its power cars. One striking feature of these runs, compared with steam working, was that no time was lost due to changing engines, filling up with coal and water, and cleaning fires. The only defect, which might have happened on any coaching stock, was a broken spring leaf noticed at Cork, which was repaired without delay to the train. With the present fuel capacity of the cars, it is estimated that at least 700 miles continuous working is possible.

North British Locomotive Co. Ltd.

The annual general meeting of the North British Locomotive Co. Ltd. was held on May 2 at the company's office, 110, Flemington Street, Springburn, Glasgow. Mr. J. B. Mavor, Chairman of the company, presided.

Dealing with profit and loss account, Mr. Mavor pointed out in his speech that the balance brought down, £193,580, as against £144,567 the previous year, enabled dividend payments to be maintained at the same rate, with £110,000 carried to general reserve. The conservative attitude apparent in this, was fully warranted, having in mind the position of taxation and inflation.

To meet the increased bank rate and use of capital generally, the directors had decided to press more vigorously for improved progress payments, without adding materially to the financial load of customers. They had continued to modernise buildings and plant, and capital expenditure outstanding had gone up from £81,480 to £95,400, although during the year much new machinery had been installed.

Last year, Mr. Mavor continued, technical and other problems had made trading more difficult. This year, what with shortage of materials, inflation, and so on, things had been more difficult still, and their growing reserve would all be required to meet the inflationary tendency this year.

Overseas Orders Secured

The year under review had been very fruitful in the securing of orders for steam locomotives for abroad. They had, Mr. Mavor added, had adverse reports from Victoria, Australia, but by vigorous action these were now overcome and recent reports were excellent; while at home they had, in conjunction with Messrs. C. A. Parsons & Co. Ltd., secured an order for the first British coal-burning gas turbine locomotive.

In addition to steam they had on hand electric locomotives. One of the developments foreseen in his last report was now taking very definite shape, as they had orders on their books for approximately 50 diesel-hydraulic locomotives, chiefly for shunting purposes. Their machine tool department could now be said to be well and truly launched.

It was not possible to predict how they would fare in the current year. They had ample orders on which to work, but shortages of steel and other materials had already made their mark, and while a strike of apprentices might in other circumstances have affected output, the material shortages had, to date, shown the greater effect.

Publicising the Clyde Coast

Joint campaign by British Railways and resorts and introduction of new facilities for visitors

British Railways and the Clyde Coast resorts have launched a publicity campaign in association with the Scottish Tourist Board to attract 1,000,000 more tourists and holidaymakers to the Coast this year. Joint railway and resort publicity schemes will popularise the Clyde Coast throughout Great Britain and overseas. The railways and resorts are sharing the cost of these productions and during 1952, 1953 and 1954 will display free of charge on their billboards throughout Great Britain 4,000 posters depicting the resorts. Already as a result of this campaign, Dunoon and Rothesay, for example, which are associated with the scheme, each report that the number of inquiries received for their holiday guides is more than double that of last season.

The Creative Tourist Agents Conference and British Railways have arranged "all-in" holidays at Dunoon and Rothesay, and other resorts in Scotland. Holidaymakers will leave by special train from Manchester, Sheffield, and some intermediate stations each Saturday from June 7 to September 6. The cost covers travel, accommodation, meals, sightseeing, transfers to hotel on arrival and departure, and a courier. These holidays are being widely advertised in England.

"Go-as-you-Please" Tickets

Facilities to encourage cruising on the Clyde include "go-as-you-please" tickets enabling holidaymakers to cruise at will. Hotels and boarding houses on the coast will be supplied with full information about steamer cruises, circular tours, and other attractions. The principal hotels and boarding houses are combining with the railways in assisting visitors to plan cruises on the Firth. Parties of eight or more will be able to obtain a voucher from their hotels enabling them to obtain a steamer ticket at a reduced rate.

Although this year British Railways' Clyde fleet has been reduced by two vessels (*King Edward* and *Duchess of Argyll*) which because of age and condition can no longer be kept in service, attractive cruises will be operated on the favourite routes. For those who wish a long day's sailing from about 9 a.m. to 8.30 p.m., cruises will be given on Mondays and Thursdays to Campbeltown; on Tuesdays to Campbeltown or Inveraray, and on Wednesdays to Ayr.

Slightly shorter cruises starting at about 9.30 a.m. may also be taken on Mondays, Wednesdays, and Fridays around Bute; on Tuesdays, Thursdays, and Saturdays the Loch Lomond tour *via* Lochgoilhead and Arrochar is available. Each Friday there is a sailing to Arran *via* the Kyles of Bute returning *via* Garroch Head. Passengers on each of these shorter sails return to the starting point in convenient time for the evening meal.

The popular "All the Way" sailing is repeated by a steamer which will leave Bridge Wharf, Glasgow, at 11 a.m. daily (Sundays included) for Dunoon, Rothesay, and Tighnabruaich.

British Railways have commissioned a famous artist to design a Clyde Coast poster for display throughout Great Britain and overseas. He will produce two designs of Clyde Coast scenery, and coloured prints will be displayed in the panels of coaches. A contour map approximately 9 ft. long of the Clyde Coast will be displayed on railway billboards throughout Great Britain, supported by special posters showing the tours and cruises available to visitors.

The publicity campaign to bring holidaymakers and tourists to Scotland generally has already begun with the publication of the British Railways' guide book for Scotland, 55,000 copies of which have been printed and are now on sale. These will be followed by a distribution of about 2,000,000 brochures, folders, and contour and diagrammatic maps giving full information about railway and steamer excursions. British Railways offices in Europe and North America will also assist in this "Come to Scotland" publicity campaign.

Folders will be prepared by British Railways and supplied to the resort authorities for distribution towards the close of the year. The cost will be borne by British Railways.

In addition to these measures and the financial support they are giving to individual resorts, British Railways have informed the resorts and the Scottish Tourist Board of their readiness to join in a collective advertising scheme to publicise the whole Clyde Coast. They are prepared to contribute one-third of the cost of providing posters, folders, and newspaper advertising. This proposed scheme, which is additional to the individual resort schemes, is under consideration by the local authorities.

European Railway-Owned Road Services

Tourist travel by road and rail through eleven European countries is now facilitated by an association known as Europabus. Through tickets, issued by travel agencies, enable the tourist to make long journeys by international motorcoaches and by rail with the option of frequent stops at points of interest *en route*, according to a pre-arranged itinerary. The Swiss Federal Railways took the initiative in organising the association, and after meetings with Western European railway authorities at Berne in 1950 the Union of European Railway-Owned Road Services was formed.

Members of the Union are Germany, Austria, Belgium, Denmark, Spain, France, Luxembourg, Italy, Holland, Sweden, and Switzerland. Europabus was founded in April, 1951, and by May a system of 28 routes was in service, totalling about 11,000 miles of travel by motorcoach and 1,000 miles by rail. Journeys by rail comprised Paris - Luxembourg, Paris - Lille, Paris - Bordeaux and Tangier-Casablanca on the Paris-Casablanca route.

In preparing a more extensive programme for 1952, the railways and the International Road Transport Union collaborated with the road organisations of the European Economic Commission. Representatives of the International Union of Railways acted for the railway-owned road services. The programme provides a great choice of routes. Tourists may begin or end their journeys at any town on the route. Return tickets are issued, generally with a reduction of fares.

Railways and Coal

Discussion on locomotive fuel consumption problems

The paper on "Railways and Coal" presented on May 1 to a joint meeting of the Institute of Fuel and the Institution of Locomotive Engineers by Mr. R. G. Jarvis (summarised in our May 2 issue), was followed by a discussion in which members of both bodies exchanged views on locomotive design and driving practice.

Mr. R. A. Riddles, Member, Railway Executive, opened the discussion. He said that if coal were the only problem the complete answer would be electrification, but that made heavy demands on capitial and manufacturing capacity. Obviously we should have steam locomotives for many years. He emphasised the attention paid to training firemen on British Railways. A fireman had only to use eleven shovelsful more than he need between Euston and Birmingham to increase his coal consumption by 1 lb. per mile.

Mr. G. T. Bailey, of the Institute of Fuel, said that the railways consumed 7½ per cent. of the coal used in this country. If that were reduced to 5 per cent., more than 5 million tons of coal would be released for balancing our economic budget. It was felt in the oil industry that the railways had never really got down to the oil-firing of steam locomotives. Locomotives had to be designed to burn oil, and a new firebox should be evolved to take full advantage of the fuel being burned. With regard to the training of firemen, he thought that in this respect industry could take a leaf out of the railways' book.

Sir William Stanier (Institution of Locomotive Engineers) said that at the time when drivers had their own locomotives and worked a ten-hour day, men showed some initiative in working engines economically. He had seen seven- or eight-coach trains going out of Paddington behind a single without slipping. Today one was led to think that it was drivers as well as firemen who needed training.

Mr. D. D. Gunn (Institute of Fuel) quoted Mr. Jarvis as giving 70 lb. per sq. ft. per hr. as a moderate consumption figure on railways. It would be unusually high for industry, where 30 to 40 lb. per sq. ft. was more usual. Perhaps this was one of the reasons why railways could operate their boilers at 70 to 75 per cent. efficiency. Another reason was the fire arch and the baffle for secondary air, which was a very well thought-out arrangement.

Mr. E. C. Poultney (Institution of Locomotive Engineers) spoke on the requirements of designing poppet valve gear. The real point was to use a relatively small valve and an improved camshaft so as to get a fair lift at all cut-offs. With an improved camshaft it appeared possible to improve cylinder power output by about 20 per cent. as against piston valves at the same rate and the same cut-off. He thought compounding was another very important matter because with existing valve gears a compound locomotive should run with cut-offs in the region of 30 to 40 per cent. and so pass far more steam through the cylinders. The amount of power developed was proportional to the amount of steam that passed through the cylinders. A compound locomotive gave the degree of expansion required without running at very short cut-offs.

Mr. John Fox (Institution of Locomotive Engineers) called for a national fuel policy in the light of present trends of consumption, which would outstrip the current rate of production of the National Coal Board. It was hoped, in the interests of the first costs of electrification, that more would be heard of the 50-cycle, single-phase system. He attached importance also to the coal-fired gas turbine locomotive to be built by the North British Locomotive Co. Ltd. and C. A. Parsons Limited, which was expected to burn about half the coal consumed by a Pacific locomotive on the Euston-Glasgow run.

Mr. M. A. Crane (Institution of Locomotive Engineers) asked whether it was not time some change was made in firing methods instead of having firemen throwing coal on to the fire with a shovel as they did 100 years ago. He also suggested that the rocking grate should be a standard fitting on locomotives.

Mr. R. F. Harvey (Vice-President, Institution of Locomotive Engineers) said that 20 per cent. of the coal used by the railways fell into the Grade 1 group. They took 22 per cent. of the large coal mined, which constituted 31 per cent. of the total mined in this country. Grading of coal took into account its ability to stay the course, so that ash content was of very great importance. The trend of coal consumption on the railways was definitely downwards.

Mr. R. C. Bond (Institution of Locomotive Engineers) said that increased thermal efficiency was being sought continuously. British Railways had probably the finest locomotive testing equipment in the world and soon results would be seen coming from the work done there. The reason why only a limited number of diesel-electric main-line locomotives was in use had nothing to do with maintenance problems but arose from the geography of this country, which limited the practicable length of runs.

While all the time the aim was to save coal by every possible means, they had primarily the duty of providing the best possible transport system at the lowest possible cost.

Staff & Labour Matters

Railwaymen's Wage Claim

Representatives of the N.U.R., A.S.L.E.F., and T.S.S.A., last week discussed the new, joint wage claim, to be submitted to the Railway Executive. The meeting adjourned to enable representatives to report back to their respective union executive committees, and it is understood that no agreement was reached on the amount of the claim. A further meeting is arranged for today (Friday).

At a conference of railway workers at Blackpool on May 3, Mr. J. B. Figgins, General Secretary of the N.U.R., said that his executive was not completely satisfied with the wage award granted with effect from September 3, 1951, because of the continued increase in the cost of living. It had been decided, he said, to make application for a percentage increase to meet these circumstances, the amount of the increase to be settled later.

Parliamentary Notes

Fare Increases

In reply to a question by Mr. Frank Beswick (Uxbridge—Lab.) on May 5, Mr. Gurney Braithwaite (Parliamentary Secretary to the Ministry of Transport) said that outside the London Area all the proposed fare increases had been suspended; the loss of revenue involved was some £2·1 million a year. It had not been decided what modifications should be made in the increases proposed in the provinces or in operation in London, and the cost could not be exactly estimated. The total cost was expected to be of the order of £2·5 million a year.

Mr. Beswick: Are we to deduce that the saving to the London workers will be of the order of £400,000, and, if so, after all the fuss is over, will the London workers still pay an additional £12 million?

Mr. Braithwaite replied that he had no control over such deductions.

Season and Shift Workers' Tickets

When Mr. Beswick asked when London season ticket holders and shift workers were to be placed on the same basis as those outside London, Mr. Braithwaite said every effort was being made to introduce any changes as soon as possible.

Mr. Beswick: Some of my constituents are paying 12s. a week more as a result of these increases. Could the House know the Government's intentions?

Mr. Herbert Morrison (Lewisham, South —Lab.) said that the Government, on the initiative of the Prime Minister, had imposed the fares standstill and was to see that equal justice was done to London. This had been stated ten days ago. Surely the Minister or Prime Minister could now say what the Government intended to do.

Mr. Braithwaite replied that the commission was examining "this complex problem" urgently. Mr. Morrison pressed the Prime Minister to reply.

Mr. Churchill: It is not my intention to answer these questions in detail this afternoon. I will content myself with the general observation that it is so much easier to do harm than put it right.

Central Transport Consultative Committee

When Mr. Ernest Davies (East Enfield —Lab.) asked the Minister of Transport, if he could now state the terms of reference to the Central Transport Consultative Committee as to sub-standard and concessionary fares, Mr. Braithwaite said the first step was to obtain the B.T.C. proposals for modification of certain fare increases.

Mr. Beswick said that while all these discussions were taking place, it would be reasonable to expect the return of the London Area to the position which applied before March 2, to put London on a level with provincial travellers.

In answer to a question by Captain R. E. D. Ryder (Merton & Morden—C.) as the directions the Minister would give under Section 4 of the Transport Act, to bring London Transport fares into line with fares outside the London Area. Mr. Braithwaite said that the B.T.C. was working out proposals.

Road Passenger Licences

Replying on May 2 to Mr. Edward Davies (Stoke-on-Trent North—Lab.), Mr. Gurney Braithwaite (Parliamentary Secretary, Ministry of Transport) said that the decision of the Minister of Transport to

revoke the licence of Northern Roadways Limited (to operate motorcoaches between Scotland and London and elsewhere in England) was made mainly because he considered the grant undesirable in the public interest, having regard to alternative services, both road and rail. The decision to defer revocation until the end of the holiday season was taken to minimise inconvenience to passengers resulting from advance bookings pending hearing of the appeal against granting of the licence.

There was no question of protecting nationalisation, but only of regulating passenger transport in accordance with the Road Transport Act, 1930.

Questions in Parliament

Passenger Road Service Licenses

Mr. M. C. Hollis (Devizes—C.) on April 28 asked the Minister of Transport to review licensing policy to ensure freedom of choice of the means of travel for the public, full regard for public needs, and discretion for the licensing authorities to give decisions unbiased in favour of the railways or State-owned road passenger undertakings.

Mr. Gurney Braithwaite (Parliamentary Secretary to the Minister of Transport) pointed out that the licensing authorities were bound by Section 72 of the Road Traffic Act, 1930, were fettered in their discretion only by the terms of that Act, and were unbiased.

Towels and Napkins in Trains

Mr. Ralph Assheton (Blackburn West—C.) on May 1 asked the President of the Board of Trade whether, to promote use of textile goods, he would make representations to the Railway Executive to replace paper towels and napkins in trains by textiles.

Mr. Peter Thorneycroft: I understand that continued use of paper towels and napkins is more economical for a number of reasons.

New Railways in Africa

Mr. C. J. Alport (Colchester—C.) on April 30 asked the Secretary of State for the Colonies whether the survey of the proposed link up of the Central and East African railway systems had been completed and what decision had been reached on construction of the new line.

Mr. Oliver Lyttelton wrote in reply: The survey has not yet been completed but is expected within the next few months.

RESEARCH ACTIVITIES ON SHOW AT THE B.I.F.—This year's exhibit by the General Electric Co. Ltd. at the Castle Bromwich section of the British Industries Fair illustrates the activities of the Company's research laboratories. Eight main aspects of their work are represented, namely, electrical engineering, heating and ventilating engineering, mechanical engineering, illuminating engineering, physics, chemistry, glass technology and metallurgy. Specimens of cold pressure welding are shown on the stand. This process was developed in the G.E.C. Research Laboratories in 1946 and enables metals to be joined by means of a weld produced entirely by pressure at room temperature. The contribution of research to industrial electronics is illustrated by a vibrating machine used in experiments to improve the life, performance and reliability of radio valves.

Contracts & Tenders

The Egyptian State Railways have placed a contract with the Gregg Car Co. Ltd., Belgium, for 40 40-ton animal trucks and 60 bogies for carriage stock.

The Victorian Government Railways, Australia, have placed a contract with the English Electric Co. Ltd. for all electrical equipment for 30 train sets operating from an overhead line at 1,500 volts d.c. The total coach equipment involved is for: 90 motor-coaches, each coach equipped with four axle-hung nose-suspended motors, developing 185 h.p. at the one-hr. rating, and arranged for series and series-parallel connection by means of pneumatic control gear; 12 driving trailer coaches; and 108 non-driving trailer coaches. The order is valued at over £1,000,000.

British Railways have placed a contract with the English Electric Co. Ltd., for the diesel and electrical equipment for 31 350-h.p. 0-6-0 type diesel-electric shunting locomotives to be built in 1953. The main frames, wheels, cab structures and mechanical parts for these locomotives will be made and assembled at the British Railways workshops at Darlington and Derby. This is the first instalment of the 573 diesel shunting engines which, as recorded in our December 28, 1951, issue, are authorised for construction during the five-year period 1953-7.

The South African Railways & Harbours have placed contracts with British Timken S.A. (Pty.) Ltd., to equip a further 130 steam locomotives and 60 electric locomotives with Timken tapered roller bearings. This follows an earlier contract, referred to in our October 19, 1951, issue, for 60 engine sets of roller bearing equipment for the South African Railways. As a result of these contracts British Timken S.A. (Pty.) Ltd. has orders from the South African Railways & Harbours to the total of 1,550 tapered roller bearing cannon boxes, 3,184 tapered roller bearing axleboxes, and 146 engine sets of tapered roller bearing crankpin equipment.

The Docks & Inland Waterways Executive has let a contract to Cook, Welton & Gemmell Limited, Beverley, for four dumb hopper barges to work with dredgers at the Humber Ports. Two of the craft will be of 750 cu. yd. capacity, and two of 550 cu. yd. capacity.

The High Commissioner for India is inviting tenders for 40 metre-gauge locomotive boilers of types "GT," "RS," "YF," "T," and "P." Further details are given under Official Notices on page 531.

The New South Wales Government is inviting tenders for inter-urban electric rolling stock. A total of 140 coaches is required and further details are given under Official Notices on page 531.

The closing date of the call for tenders issued by the Portuguese Directorate General of Overseas Development for various types of rolling stock has been extended from May 24 to June 28, according to a recent report by the Board of Trade, Special Register Information Service. Previous reference to the tender was made in our April 25 issue.

The United Kingdom Trade Commissioner at Delhi, India, has notified the Board of Trade Commercial Relations & Exports Department that the Directorate General of Supplies & Disposals, New Delhi, has issued a call for tenders (No. SW-2/17597-C/IV) for 600 steel superheater flues and 2,000 steel boiler tubes.

Tenders should reach the Office of the Directorate General of Supplies & Disposals, New Delhi, by 4 p.m. on May 28, and will be opened at 11.30 a.m. on May 29. A copy of the tender documents is available for inspection by representatives of United Kingdom manufacturers at the Board of Trade. A further copy is available for loan to United Kingdom manufacturers in order of written application to the Commercial Relations & Exports Department; reference C.R.E./15336/52 should be quoted.

The Government of Pakistan has issued a call for tenders for the supply of:—

12 metre-gauge four-wheel motor vans, "MMV" type, built on 26 ft. standard underframes, dismantled and crated.

22 metre-gauge fish vans, "MFV" type, built on 26 ft. standard coaching underframes, fully erected.

Two metre-gauge 26 ft. standard coaching underframes, dismantled and crated.

Tenders should reach the Office of the Director General, Railways, Railway Division, Ministry of Communications, Karachi, by 12 noon on June 21. A copy of the tender documents is available for inspection by representatives of United Kingdom manufacturers at the Board of Trade Commercial Relations & Exports Department. Further copies of the tender documents and particular specifications can be obtained from the Office of the Director General, Railways, Ministry of Communications, on payment of Rs. 50 for each complete set.

Notes and News

Vacancy for Reinforced Concrete Designer.—Applications are invited for a reinforced concrete designer and detailer required for railway civil engineering drawing office in London. See Official Notices on page 531.

Vacancies for Senior and Junior Draughtsmen.—Applications are invited for the posts of senior and junior draughtsmen required by locomotive builders in Lancashire. See Official Notices on page 531.

Light-Alloy Hopper Wagons in France.—In the article on light-alloy hopper wagons in France in our April 25 issue, the reference in the second column to the axleboxes gave Bs 1409 as the British equivalent of the alloy. This should have been given as Bs 1490.

Rhodesia Railways—Vacancies for Civil Engineers.—Vacancies exist for fully qualified civil engineers for service in the Chief Engineer's Department of the Rhodesia Railways. Preferably single men under 25 years of age will be considered, but married men not exceeding 30 years of age may apply. See Official Notices on page 531.

Institute of Traffic Administration.—The 1952 Annual Conference of the Institute of Traffic Administration will be held at the Imperial Hotel, Birmingham, between May 23-25. Papers will be given on "Problems of Integration of Inland Transport," by Professor Gilbert Walker, of Birmingham University, and on "Industrial Human Relations in the Transport Industry," by Mr. John Lancaster, National Officer for

Transport Staffs, National Association of Local Government Officers. The Annual Dinner of the Institute will be held at the Imperial Hotel on May 24, and the programme will also include a visit to the Shakespeare Memorial Theatre at Stratford-on-Avon, and a coach tour to Lichfield.

Compagnie Générale de Construction de Locomotives Batignolles-Châtillon: Change of Name.—At the general meeting of Compagnie Générale de Construction de Locomotives Batignolles-Châtillon a decision will be taken to change the name of the company to Compagnie Générale de Construction Batignolles-Châtillon. The change will emphasise that the company does not only build and repair locomotives but also undertakes every type of engineering construction.

Diesel Railcar Tour.—On Sunday, June 22, the Railway Correspondence & Travel Society is organising a diesel railcar tour of over 208 miles, starting from Bristol Temple Meads at 7.30 a.m. and terminating at the same station about 6.30 p.m. The route will be *via* the Severn Bridge to Lydney, through to Monmouth, Ross-on-Wye, Hereford, Brecon, Pontsticill Junction, Quakers Yard, Crumlin (High Level), and Pontypool Road, thence back to Bristol via Severn Tunnel Junction. The motive power depots at Lydney, Hereford, Brecon and Pontypool Road will be visited. The fare will be 25s. 3d., and early application, enclosing remittance and stamped envelope, should be sent to the South of England Branch Secretary, J. R. Fairman, 550, Bitterne Road, Southampton.

Western Railway, India, Electric Rolling Stock.—Units of the lightweight electric rolling stock recently built for the Western Railway of India, which were described and illustrated in our April 27, May 11 and 25, and June 8, 1951, issues, have been undergoing performance tests on the former B.B.C.I.R. suburban lines. The new units are formed from motor-coaches built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd. and the trailer coaches by the Birmingham Railway Carriage & Wagon Co. Ltd., and have electrical equipment designed and supplied by the British Thomson-Houston Co. Ltd. Train lighting equipment for the new rolling stock was by J. Stone & Co. Ltd. In the accompanying illustration, which was taken during the tests, are shown:—

Left to right : Messrs. L. R. Bury, J. Stone & Co. Ltd.; R. Bugler, British Thomson-Houston Co. Ltd.; H. H. C. Barton, Messrs. Merz and McLellan; Mr. Darwell, Westinghouse Brake & Signal Co. Ltd.; Mr. Twining, British Thomson-Houston Co. Ltd.; Mr. Patel, Western Railway, India.

Railway Students' Association.—The Railway Students' Association has made arrangements for a social outing by motor-coach on Saturday, May 24. The coach tour, which will cover portions of West Kent and the Medway Valley, will begin at Swanley Station at about 2.30 p.m. and terminate at the same place at approximately 7.30 p.m.

Toton Marshalling Yard.—A paragraph, which appeared in our May 2 issue, reviewing the booklet "Modernised Up Marshalling Yard at Toton," referred to an earlier publication by *The Railway Gazette* dealing with mechanisation at Toton. This earlier booklet was published on the occasion of mechanisation of the Down yard in 1939, and not the Up yard, which has been the subject of complete remodelling in recent years.

Injunction Against U.S.A. Railway Unions.—A Federal judge in Cleveland, Ohio, on April 15 issued a preliminary injunction against three unions of railway employees, forbidding them to call a strike until hearings have been concluded on an application for a permanent injunction. The judge's order, made on the application of the Government, supersedes an order halting a three-day strike, which he issued on March 11. The unions have announced that they will appeal. They contend that the Government cannot properly be considered to be their employer, although it has never relinquished possession of the railways since it took them over two years ago as an emergency measure.

London Midland Region Enginemen's Quiz Competition.—Three teams contested for the championship of the London Midland Region Locomotive Men's Mutual Improvement Quiz Competition at Euston on May 1. The questions were on railway rules and regulations, and locomotive matters. Derby won, with Willesden and Newton Heath second and third respectively. Each member of the three teams was presented with a fountain pen by Mr. E. S. Hunt, Assistant Chief Regional Officer, London Midland Region. Derby will now represent the London Midland Region in the British Railways Inter-Regional Championship in which the prize for the winning team is a trip to France, including visits to French locomotive depots.

Institution of Locomotive Engineers.—A summer meeting of the Institution of Locomotive Engineers will be held at Corby on Friday, May 23, during which a tour will be made of the works of Stewarts and Lloyds Limited, by invitation of the Directors. The party will assemble at Kettering Station at 10.20 a.m., members from London will travel by the 8.50 a.m. train from St. Pancras.

N.E. Region Enginemen's Quiz Finals.—York Mutual Improvement Class team beat West Hartlepool in the Regional finals of the Quiz contest at Darlington on April 21. The York team consisted entirely of firemen. Mr. F. H. Petty, Motive Power Superintendent, North Eastern Region, was the Quiz Master. The winners will compete in an inter-regional quiz at which the British Railways championships will be decided in London this month.

Road Accidents in February.—There was a decrease of 1,035 in road accidents last February compared with 1951, the respective totals being 11,992 and 13,027. Fatal casualties this year, at 304, were 38 fewer, and the number of seriously injured fell from 2,979 to 2,796. Figures for all other classes of road users showed a decline except accidents to children pedestrians, totalling 1,651, which was about the same as in the previous February.

Inter-Allied Railway Club Reunion in Paris.—The third annual gala and ball of the Foyer Interallié des Chemins de Fer, Paris, "La Nuit Européenne de la Locomotive '52'," arranged for February 29, but postponed as a mark of respect to the memory of King George VI, was held at the Aéro-Club, Paris, on April 25. Monsieur André Morice, Minister of Transport & Public Works, and Monsieur Louis Armand, Director General of the French National Railways, were the guests of honour. They were received by Monsieur Paul Durand, President of the Club, and by the two Vice-Presidents, Messrs.

Performance tests have recently been carried out on the Western Railway of India with the new electric multiple-units for the former B.B.C.I.R. suburban lines. Left: Group taken during the tests (see paragraph above); right: test train at Virar, showing some of the banana traffic handled on this section

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

THE High Commissioner for India invites Tenders for the supply of GROUP 6. 40 Metre Gauge Locomotive Boilers types GT, RS, YF, T and P. Forms of tender may be obtained from the Director-General, INDIA STORE DEPARTMENT, 32/44, Edgware Road, London, W.2, at a fee, which is not returnable, of 10s. 0d. Tenders are to be delivered by 2 p.m. on 11.7.1952 and are to remain open for acceptance for 3 months from this date. Please quote reference S.334/52 in your application.

CORAS IOMPAIR EIREANN, Dublin, require one new or second-hand Electric Travelling Wharf Crane to the following brief particulars: Load 6-tons at 40-ft. radius single rope, Tail Radius 8′ 6″, Gauge of Rails 7-ft., Power Supply 550-volts, D.C. Full particulars and price, or further enquiries, to STORES SUPERINTENDENT, Inchicore, Dublin.

RE-INFORCED concrete designer and detailer, used to marine and pier work, required for Railway Civil Engineering Drawing Office in London. Salary £12/-/- per week with free residential railway travelling facilities within certain limits and other reduced rate railway travelling facilities after qualifying period of service. Five day week and canteen facilities available. Applications, which should be in writing, should be addressed to the Civil Engineer, BRITISH RAILWAYS, King's Cross Station, London, N.1.

JUNIOR TRAFFIC OFFICIAL with Railway Traffic apprenticeship experience required for the Southern Railway of Peru, age 20/25 years, single, knowledge of Spanish would be an advantage. Apply to the SECRETARY OF THE PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

RHODESIA RAILWAYS

VACANCIES FOR CIVIL ENGINEERS

VACANCIES exist for fully qualified Civil Engineers for service in the Chief Engineer's Department of the Rhodesia Railways. Preferably single men under the age of 25 years will be considered, but married men not exceeding 30 years of age may apply. A degree in Civil Engineering and/or Corporate Membership of the Institution of Civil Engineers is essential. The grades of Junior and Assistant Engineer have salary scales between the limits of £560 and £1,460 per annum, with incremental notches of £40 per annum and the commencing salary would be determined in accordance with age and experience. The vacancies are for appointment to the Temporary Staff in the first instance, but transfer to the Permanent Staff may be made to fill vacancies and on the recommendation of the Chief Engineer. Vacancies may occur later on for members of the Permanent Staff for the grade of District Engineer by selection within the scale £1,350 to £1,750 per annum. All salaries are enhanced by a variable Cost of Living Allowance, which at present is 17% on basic rates. Full particulars may be obtained from The London Agent, RHODESIA RAILWAYS, 241, Salisbury House, London Wall, E.C.2. Applications should reach the London Agent by the 30th May, 1952.

SENIOR and JUNIOR DRAUGHTSMEN required by Locomotive Builders in Lancashire. Experience in Steam, Diesel or Electric Locomotives preferred but candidates with heavy Engineering experience will be considered. Excellent working conditions, Pension scheme, Staff Canteen and full Sports facilities provided. Good salaries plus production bonus.—Box 481, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

LOCOMOTIVE, CARRIAGE and WAGON SENIOR DRAUGHTSMAN 30/35 years of age. Qualifications: Must have served a full general apprenticeship in an Engineering workshop (preferably Railway) and have had at least five years' drawing office experience with some time in an executive capacity. A knowledge of Spanish an advantage. Future prospects. Apply to the Secretary, PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

GOVERNMENT OF NEW SOUTH WALES

TENDERS are invited for the supply of the following Inter-Urban Electric Rolling Stock to Specification No. 2238:—Seventy (70) 65′ 0″ Steel Inter-Urban Electric Motor Cars. Thirty-five (35) 65′ 0″ Steel Inter-Urban Electric Trailer Cars. Thirty-five (35) 65′ 0″ Steel Inter-Urban Electric Trailer Cars with Buffet. Particulars and forms of Tender can be obtained by bona fide Tenderers upon application to the undermentioned address, to which Tenders are returnable Not Later than Twelve Noon on Wednesday, the 27th August, 1952.—AGENT GENERAL FOR NEW SOUTH WALES, 56/57, Strand, London, W.C.2.

TECHNICAL SALES ENGINEER to exploit market for Speed Indication and Recording of Steam, Diesel and Electric Locomotives; also for Industrial plants. Previous experience and live connection with Railway Engineers essential. Progressive post. Write stating previous experience and salary required to—Box R.G. 196 at 191, Gresham House, E.C.2.

INSPECTING Engineer established on Continent many years now able to extend scope for inspection of locomotives rolling stock constructional and permanent way material in Western Europe.—Box 474, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25*s.* per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

JUST PUBLISHED.—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10*s.* 6*d.*—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.

P. C. Durrant, General Agent for France of British Railways, and N. E. Spencer, General Representative in France of the Canadian Pacific Railway. The company included many officers of French and other railways. The attractions included a raffle, for which the Cie. Maritime des Chargeurs Réunis offered as a prize a free Mediterranean cruise, and the Cie. Internationale des Wagons-Lits a sleeping car pass to the Riviera.

Railway Benevolent Institution.—At its meeting on April 23 the Board of the Railway Benevolent Institution granted annuities to seven widows and eight members, involving an additional liability of £256 17s. per annum. Sixty-seven gratuities were also granted amounting to £648 7s. to meet cases of immediate necessity. Grants made from the casualty fund during the month of March amounted to £556 5s.

Western Region First Aid Competition.—Those of the 126 teams which gained the first nine places in the semi-finals of the Western Region First Aid Competition competed in the Final Competition held in the Porchester Hall, Paddington, London, on April 29. Officers of the Railway Executive and the Western Region saw the contest. The presentation of prizes and trophies was presided over by Mr. K. W. C. Grand, Chief Regional Officer, Western Region, and the presentations were made to the winning teams by Mrs. Grand. The results were: Bristol D.O.S.O. (Winners of Challenge Shield) 510 marks of a maximum of 600; Taunton (Winners of Carvell Cup) 499½; Shrewsbury Loco "A" 474; Swindon "A" 463½; Gloucester Eastgate "A" 440; Redditch 434; Cardiff Docks 427; Barry 424½; and Old Oak Common "A" 405. The Henry Butt Bowl was presented to the Radstock No. 1 team, which secured the highest position in class two in this year's competitions. The Bristol D.O.S.O. and Taunton teams will represent the Western Region in the British Railways & London Transport (Railways) National Competition, which is being held in the Central Hall, Westminster, on May 16.

Liverpool Overhead Traffics.—During the five weeks ending in the month of March, receipts of the Liverpool Overhead Railway were up by £150, £171, £261, £595, and £422, successively. Traffics were highest in the week ended March 23, when they amounted to £2,811, and at March 30 aggregate receipts since January 1 were £35,609, as compared with £32,138 for the equivalent period of 1951.

Six-Coach Diesel Train on Belfast-Bangor Line.—On Monday, May 5, the new six-coach diesel train was brought into service on the Bangor line of the Ulster Transport Authority in conjunction with the revised timetable. It is proposed to operate 20 services a day with the new train so that with the diesel trains already running approximately two-thirds of the services on the Bangor line will be operated by diesel power. The new train will operate as a six-coach train at peak periods and at off-peak periods will operate as two three-car units. As well as the change from steam to diesel traction the new timetable provides for two extra trains between Belfast and Bangor on weekdays and seven extra on Sundays. The Sunday timetable will then provide a half-hour service between Belfast and Bangor in the afternoon and evening.

International Railways of Central America.—An independent committee of stockholders of the International Railways of Central America, in which much British capital is invested, has been formed in New York. The committee is asking for support in forming a new board of directors to replace the present board. The chief task of the new board would be to further the claims of certain stockholders against the United Fruit Company, in connection with which a lawsuit is pending. The London agents of the railway are advising British stockholders to "withhold judgment on the matters raised by the committee" pending an answer from the railway company to the committee's proposals.

Pigeons Special Trains.—At midnight on April 26 the first of 90 special trains on the London Midland Region left Preston for Whitchurch, Shrewsbury, and Craven Arms. Throughout the pigeon racing season special trains will convey birds to destinations where they are released to fly home again. They will be accompanied throughout by special attendants belonging to racing clubs. In addition to the special trains, smaller consignments of birds will travel during the season in vans attached to express passenger trains.

Luncheon of Overseas Railway and Tourist Organisations in Paris.—At the monthly luncheon, in April, of the society to which belong the representatives of foreign railway administrations and of the national tourist organisations in Paris, Great Britain took its turn to officiate. Mr. P. C. Durrant, General Agent for France of British Railways, and Colonel Twist, Manager for France, British Travel & Holiday Association, were the hosts on St. George's Day, April 23, to representatives of the British Embassy in Paris and of railway administrations, comprising France, U.S.A. (New York Central and Pennsylvania Railroads), Canada (C.P.R. and C.N.R.), Switzerland, Italy, Spain, Portugal, Austria, Germany, Belgium, Holland, Denmark, Sweden, and Finland. The guest of honour was the British Consul-General in Paris. The menu included dishes repre-

senting each of the four constituents of the United Kingdom: Scotch salmon, Irish stew, Yorkshire pudding, and Welsh rarebit. A firkin of draught ale was sent specially from England for the occasion.

B.E.T. Omnibus Services Limited.—The accounts of B.E.T. Omnibus Services Limited for the year ended March 31, 1952, show a profit of £376,988. The balance brought forward was £128,605. From the resulting total of £505,593, the sum of £100,000 has been transferred to reserve, leaving £405,593 available for appropriation. The directors recommend payment of 10 per cent. on the cumulative preference shares and 12 per cent. on the ordinary shares (on account of both of which 5 per cent. was paid on December 1, 1951). The balance remaining to be carried forward is £160,343.

Camping Coaches on Western Region.—Camping coaches will be available for holidaymakers on the Western Region from this month. This facility, withdrawn at the outbreak of war, provides a railway coach specially fitted with sleeping quarters and domestic requirements for eight persons. The coaches are stabled at certain selected stations, and may be hired at weekly rentals of between £7 and £10. The first will be available from May 24 at Blue Anchor, Dawlish Warren, Fowey, St. Agnes, Marazion, Ferryside, Manorbier, Aberdovey, Abererch, and Borth Stations. Twenty more coaches will be provided early in the summer at other pleasantly situated seaside and country stations.

Forthcoming Meetings

May 13 (*Tue.*).—Institution of Civil Engineers, Great George Street, S.W.1, at 5.30 p.m. "Factors Involved in the Renewal of Underline and Overline Bridges, and their Influence on Design," by Mr. A. N. Butland, Assistant Civil Engineer, North Eastern Region.

May 13 (*Tue.*).—Road Haulage Association, Annual Luncheon, at Grosvenor House, Park Lane, W.1, at 12.30 for 1 p.m.

May 14 (*Wed.*).—North Western Fuel Luncheon Club, in the Engineers' Club, Albert Square, Manchester, 2. "Getting Coal from Pits by Road," by Mr. A. A. Hirst.

May 14 (*Wed.*).—Road Haulage Association. Annual General Meeting, at Caxton Hall, Westminster, S.W.1.

May 14 (*Wed.*).—Society of Chemical Industry, Corrosion Group, in the Chemical Society's Rooms, Burlington House, Piccadilly, W.1, at 6.30 p.m. Papers on "The Prevention of Corrosion in Packaging," by Messrs. E. G. Stroud and W. H. J. Vernon.

May 15 (*Thu.*).—Institution of Electrical Engineers, Savoy Place, W.C.2, at 5.30 p.m. Annual General Meeting, for Corporate Members and Associates only.

May 17 (*Sat.*).—Permanent Way Institution, Manchester & Liverpool Section, in the Temperance Institute, London Road, Southport, at 2.30 p.m. Quiz Programme.

May 17 (*Sat.*).—Permanent Way Institution, London Section. Visit to Sea Defence Works between Folkestone and Dover, Southern Region, and to Romney, Hythe & Dymchurch Railway.

May 19 (*Mon.*).—27 (*Tue.*).—Institute of Transport. Visit to Netherlands.

Railway Stock Market

After a further easing of prices in most sections, stock markets firmed up under the lead of British Funds; these attracted buyers on the view that if, as is widely assumed, there is unlikely to be a further increase in the bank rate, at least for the time being, the gilt-edged market may rally strongly before long. The new 4½ per cent. British Electricity stock, which in initial dealings recently was down to a discount of 6s. 3d., has rallied, and there is a premium of 1s. 3d. at the time of going to press.

The position of 3½ per cent. Steel stock is worrying investors. In the event of denationalisation, it is impossible to forecast the terms of steel unscrambling, but it is believed in the City that in any event the existing 3½ per cent. Steel stock will remain; the amount of it in issue might be reduced if it were decided to give companies an opportunity to buy back their steel interests, such as English Steel, whose shares were never quoted and were held by controlling concerns. It is by no means certain that denationalisation would involve an offer to exchange 3½ per cent. Steel stock into shares of the various companies previously quoted on the Stock Exchange. As to Transport stocks, the bulk was issued as compensation for railway nationalisation, and there has been so far no question of denationalising the railways.

Foreign rails have been quieter, though Manila debentures were again a lively market with the "A" at 80½ and the "B" 70½, but the preference eased slightly to 9s. and the ordinary shares to 2s. 7½d., the view having gained ground that an early announcement of plans for dealing with the Manila Railroad bonds is unlikely. Nevertheless, the market continues very hopeful of a fair and equitable scheme in due course.

A reaction in Antofagasta ordinary and preference stocks to 12¾ and 59½, respectively, was attributed to a tendency to await news of forthcoming political developments.

United of Havana stocks receded mainly because of the absence of buyers; the 5 per cent. debentures were 16¾. San Paulo 10s. units have been easier at 14s.

Leopoldina ordinary and preference remained firm at 11⅛ and 28¾ respectively. Leopoldina Terminal debentures were a trifle lower at 21 with the ordinary shares slightly under 9d.

Elsewhere, Brazil Rail bonds were 5⅛ and held firmly in the belief that the eventual pay-out will be in excess of the current market price.

Mexican Central "A" debentures were 75½. Nitrate Rails shares remained at 23s. 6d. and Taltal were 16s. 6d.

Canadian Pacifics receded to $65¼ but there was investment buying of the 4 per cent. debentures, which attracted because of the yield of 4⅛ per cent. and strengthened to 81¼; the 4 per cent. preference were 64¾ at which there is a generous return of over 6 per cent. The preference stock is non-cumulative as to dividend, but dividend requirements are covered with a big margin, and the market price seems attractive in view of this and the good yield.

In road transport shares, West Riding receded to 31s., Southdown were 76s. 3d. and Lancashire Transport 39s. 6d. B.E.T. deferred stock at £390 failed to recover from its recent reaction, partly because of a disposition to await the financial results, due in a few weeks, though the market expects the dividend to be maintained.

There was a firm trend in engineering and kindred shares with Guest Keen higher on balance at 51s. helped by the higher dividend. Babcock & Wilcox, however, turned easier to 65s. 6d. on some disappointment with the unchanged distribution.

Vickers at 44s. 1½d. have been firmer since publication of the full report and accounts, which show that production last year would have been higher if it had not been for steel and other shortages. The market is assuming that this year, with a larger armament output, profits may record a further rise. Even although earnings may rise this year, the effect of net profits may be very moderate because of taxation and E.P.L.

Locomotive building and engineering shares have been fairly steady, with Beyer Peacock 29s. xd. and Birmingham Carriage 32s. 9d., but Hurst Nelson were eased to 48s. 9d. at Glasgow. Vulcan Foundry strengthened to 23s. 9d., North British Locomotive were 15s., Gloucester Wagon 11s. 3d., Wagon Repairs 11s. 6d., and Charles Roberts 20s. 9d.

Traffic Table of Overseas and Foreign Railways

	Railway	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: Inc. or dec. compared with 1949/50	No. of week	Aggregate traffics to date: Total 1950/51	Aggregate traffics to date: Increase or decrease
South & Cen. America	Antofagasta ..	811	25.4.52	£ 172,450	+ £ 10,760	17	£ 2,609,080	+ £ 825,730
	Costa Rica ...	281	Mar., 1952	c1,291,442	+ c828,700	39	c11,423,709	+ c2,585,228
	Dorada	70	Mar., 1952	32,729	− 1,506	13	102,429	− 5,679
	Inter. Ctl. Amer....	794	Feb., 1952	$1,184,770	− $48,689	9	$2,500,507	− $48,296
	Paraguay Cent. ...	274	28.12.51	G289,547	+ G102,688	26	G8,823,911	+ G3,556,978
	Peru Corp. ..	1,050	Mar., 1952	$8,659,000	+ $756,000	39	$74,638,000	+ $5,967,000
	" (Bolivian Section)	66	Mar., 1952	Bs.19,081,000	+ Bs.4,871,000	39	Bs.145,347,000	+ Bs.34,880,000
	Salvador	100	Feb., 1952	c170,000	− c74,000	35	c1,382,000	+ c55,000
	Taltal	147	Mar., 1952	$2,436,000	+ $345,000	39	$19,893,000	+ $5,205,000
Canada	Canadian National†	23,473	Mar., 1952	19,412,000	+ 1,858,000	13	53,914,000	+ 6,274,000
	Canadian Pacific†...	17,037	Mar., 1952	12,636,000	+ 1,134,000	13	35,945,000	+ 3,209,000
Various	Barsi Light* ...	167	Feb., 1952	36,960	+ 3,945	48	369,540	+ 50,557
	Gold Coast ...	536	Feb., 1952	297,888	+ 19,649	47	3,152,908	+ 299,560
	Mid. of W.Australia	277	Feb., 1952	54,399	+ 15,228	35	470,357	+ 153,973
	South Africa ...	13,398	5.4.52	1,978,918	+ 86,799	1	1,559,857	+ 268,976
	Victoria	4,744	Dec., 1951	1,908,931	+ 609,316	26	—	—

* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at $3 to £1